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TRANSACTIONS

OF THE

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1886.

OFFICERS OF THE SOCIETY.

PRESIDENT:

H. H. KIMBALL, M. D.

FIRST VICE-PRESIDENT:

W. L. BEEBE, M. D.

SECOND VICE-PRESIDENT:

R. D. BARBER, M. D.

THIRD VICE-PRESIDENT:

E. A. HOLMES, M. D.

TREASURER:

S. B. SHEARDOWN, M. D.

RECORDING SECRETARY:

C. B. WITHERLE, M. D.

CORRESPONDING SECRETARY:

J. F. FORCE, M. D.

CENSORS:

FOR THREE YEARS—R. S. McMURDY, M. D.
A. W. STINCHFIELD, M. D.

FOR TWO YEARS— A. H. LINDLEY, M. D.
W. W. MAYO, M. D.

FOR ONE YEAR— J. C. RHODES, M. D.
V. SMITH, M. D.

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PROCEEDINGS

OF THE

EIGHTEENTH ANNUAL MEETING

OF THE

Minnesota State Medical Society

The Society met at 10 A. M., Thursday, June 17th, 1886, at the West Hotel in Minneapolis, the President in the chair.

The session was opened with prayer by the Rev. Peter Stryker, D.D.

An address of welcome was delivered by W. W. Folwell, L.L.D.

Drs. Hance, Tefft and McCormick were appointed the committee on new members.

On motion of Dr. Leasure, it was voted to hold an extra session at 8 P.M.

The Society then listened to the annual address by the President, the First Vice-President taking the chair.

Dr. Leasure moved the thanks of the Society, and that a committee of five be appointed by the chair to report on the suggestions embodied in the address. Carried. Dr. Kimball appointed the committee as follows: Drs. Leasure, Dunsmoor, Dunn, Laton and P. E. Jones.

Dr. Start, of the State Pharmaceutical Association, being introduced to the Society by Dr. Dunsmoor, presented resolutions condemning the mixture of drugs, not making chemical compounds, by manufacturing pharmacists. It was argued that this custom was of great disadvantage to the druggist, who was obliged to keep in stock an enormous number of preparations, and to the physician, who is made uncertain in regard to the quality and quantity of the drugs prescribed. It rests with the latter to stop the practice by ceasing to prescribe proprietary medicines.

On motion, a committee of three, (Drs. Phillips, Wheaton and McGaughey,) was appointed to consider the resolutions and to attend the next meeting of the State Pharmaceutical Association.

The committee on new members reported favorably on a number of names. Inquiries were made by several members as to the evidence that the committee had taken as to the standing of applicants. After some discussion, in which criticism was made on the method of admitting new members in the past, Dr. Dunsmoor moved that the gentlemen presented by the committee be elected members with the understanding that the names of any afterwards found not to be regular graduates should be stricken from the rolls. Carried. [The names of members elected are in italics in the roster at the back of this volume.]

The Society now adjourned till 8 P. M. The afternoon was occupied with the meeting of Sections, according to the programme prepared by the Executive Committee.

THURSDAY EVENING.

The Society was called to order by the President at 8 P. M.

The committee on nominations for chairmen was appointed as follows: Drs. W. Davis, C. Williams, Stockton, L. R. Wass, W. W. Mayo, Blackmer, A. F. Ritchie, C. Hill, Beebe, Ferro and Barber.

Dr. French protested against the present method of admitting new members. A discussion followed, which was terminated by Dr. Millard, who offered the following resolution and amendment to the by-laws:

WHEREAS, As a large number of medical schools in this country continue to graduate their students after having taken only two courses of medical lectures and without regard to preliminary literary acquirements, and as Art. 9 of the Constitution of this Society requires that its members shall be well versed in literature and medicine, I therefore submit the following proposed amendment to Sec. 8, Art. 2 of the By-Laws of this Society, to-wit:

The president shall appoint annually a committee of three, to be known as the Committee on New Members. The duties of said committee shall be to make a thorough examination of all applicants for membership in this Society not possessing the recognized diplomas or acquirements. Examinations shall be conducted upon the following named branches, viz.: Anatomy, Physiology, Chemistry, Materia Medica and Therapeutics, Pathology, Obstetrics and Gynæcology, Diseases of Nervous System and Medical Jurisprudence, Preventive Medicine, Practice and Surgery. All graduates in medicine of later date than 1887 shall be required to pass this examination unless alumni of a school in medicine whose curriculum requires before graduation not less than three full courses of lectures of twenty or more weeks duration each. If

not graduates of such schools, said applicant must satisfy said committee of having taken three full courses of lectures before receiving his or her degree. Graduates of regular schools of earlier date than 1888 shall be entitled to membership upon recommendation of the said committee; Provided, however, in case of written objection to membership by any member of this Society, the application shall be referred to the Board of Censors for final recommendation.

At Dr. Millard's request action on the above amendment was deferred till the next annual meeting.

Dr. Dunsmoor stated that the National Board of Health was likely to go under from want of support, and presented a resolution favoring its continuance, to be sent to the members of Congress from Minnesota.

Dr. Hewitt agreed as to the necessity of a National Board of Health, but objected to the present one. He was opposed to Dr. Dunsmoor's resolution.

Dr. Dunsmoor asked that Dr. Hewitt should amend the resolution to meet his views.

The amended resolution was passed, as follows:

Resolved, That the secretary of this society forward to the Senators and Representatives of Minnesota in Congress the following:

The Minnesota State Medical Society respectfully ask you to use your vote and influence for the reorganization and support of the National Board of Health on the conditions following, to-wit:

1st. That said board be an independent national organization, as at present, not a bureau in any other department.

2d. That its organization be so changed as to bring it into more active and helpful relation and association with the boards of the several States.

3d. That the necessary qualification for membership in the said board be practical experience in the actual work of boards of health in this country.

4th. That its duties be

(*a*) To establish a sanitary inspection by competent health officers, in connection with the consular service, at the ports of foreign countries whence infectious diseases threaten to invade the United States; said officers to make a study of the origin of such diseases with a view to a further knowledge of their prevention or control, for use at home.

(*b*) That all information so obtained shall be regularly and promptly furnished to the sanitary authorities of the respective States.

The Secretary was directed to send copies of the above resolution to the Members of Congress fom Minnesota.

Dr. Berry, as Chairman of Committee on Epidemics, Hygiene, and Climatology, stated, with regret, that he had received no answers to two hundred circulars of inquiry sent to members of the Society, and that in consequence he could present no report.

Dr. Hewitt, as Chairman of Committee on Medical Education, reported that the Medical Faculty of the State University now give degree of Doctor of Medicine only after three years practice. Out of thirty candidates only seven have received the degree of Bachelor and none that of Doctor. Dr. Hewitt spoke highly of the work of the State Board of Examiners under Dr. Millard's administration. Dr. Mayo endorsed Dr. Hewitt's remarks.

Dr. Millard stated that on July 1st, 1883, there were 1160 practitioners of medicine in the State, of whom more than one-third were not regular graduates. The five year exemption clause enabled 119 to remain in the State; 260 were compelled to leave. At present there are only 995 practitioners in the State. Of these 72 remain under

the five year exemption clause. During the life of the Board it has examined about 80 for licences, but has licensed only one. Travelling quacks are now almost unknown. The Board refuses to recognize the diplomas of seventeen schools. In answer to a question, Dr. Millard stated that a licence could be rescinded if licensee afterwards showed himself unfit to hold it.

Adjourned to Friday morning.

FRIDAY MORNING.

The session was opened with prayer by the Rev. J. L. Pitner.

A telegram was received from Dr. McComb on behalf of the Chamber of Commerce of Duluth, inviting the Society to hold its next annual meeting in that city. The invitation was warmly seconded by Drs. McCormick and Ritchie.

Dr. Leasure stated that according to the constitution the Society could only meet in St. Paul and Minneapolis. On discussion it appeared to be the general wish to accept the invitation to go to Duluth, and Dr. Leasure offered the following amendment to the constitution, which was unanimously adopted:

In Art. 1, Sec. 2, after the word Minneapolis, insert the words "or in some other place if the Society shall elect."

The Committee on nomination of chairmen reported the following names, who were then elected by the Society:

Practice of Medicine—J. C. Rosser, Brainerd.
Surgery—P. H. Millard, Stillwater.
Obstetrics—Park Ritchie, St. Paul.

Epedemics, Hygiene and Climatology—Charles Simpson, Minneapolis.

Diseases of Children—C. E. Atkinson, St. Paul.

Diseases of Women—A. W. Abbott, Minneapolis.

Orthopœdic Surgery—J. W. Andrews, Mankato.

Nervous Diseases—W. A. Jones, Minneapolis.

Materia Medica—A. E. Spalding, Luverne.

Ophthalmology and Otology—C. J. Spratt, Minneapolis.

Medical Education—T. S. McDavitt, Winona.

Medical Jurisprudence—C. H. Boardman, St. Paul.

Pathology—A. F. Ritchie, Duluth.

The committee on the President's address made the following report:

The undersigned Committee appointed to take into consideration the suggestions of the President relative to a revision of the working methods of the Society, and certain other matters pertaining to its interests, and the interests of the profession at large within the State, and the general public, respectfully report: That it recommends the adoption of Section 7, to be added to Article 7 of the Constitution, as follows, viz.: The several departments shall be divided into two sections, as follows, viz.: Practical medicine, obstetrics, diseases of children, epidemics, climatology and State medicine, nervous diseases, materia medica, medical jurisprudence and medical education, to constitute the first section; and practical surgery, diseases of women (gynæcology), ophthalmology and otology, pathology, and orthopœdic surgery, the second section; and these sections shall severally meet coincidently or otherwise, as shall be decided by the executive committee, to hear reports and papers of the departments in the order above named; and the First Vice-President shall be President of the first section, and the Second Vice-President shall be President of the second section; and in the absence of the proper Vice-President, the section shall elect a Presi-

dent pro tem.; and each section shall elect a Secretary, who shall keep a full and correct report of the proceedings of the section, and remit it to the Recording Secretary of the Society, for incorporation in the general minutes for publication in the volume of the Transactions.

The Committee recommend the adoption of the following as Section 12 of Article 2 of the By-Laws:

Within thirty days after the adjournment of the annual meeting of the Society the Treasurer shall furnish the President with a corrected roll of the members, and within twenty days thereafter the President shall return to the Secretary the names of the members of committees, who shall, within ten days thereafter, notify such members of their appointment. And the Committee on Publication shall issue the volume of Transactions on or before the first day of October in each year, and the Treasurer shall notify all members liable to be dropped from the rolls for non-payment of dues thirty days before the meeting at which their names shall be stricken from the roll.

In relation to the customary annual banquet, the Committee suggests that a banquet be dispensed with, and a general meeting, containing all the *salient features* of the banquet, be substituted in its stead.

In relation to medical education the committee recommends the adoption of the following resolution:

Resolved, This Society advises the passage by the Legislature of an act making it obligatory upon every person who shall desire to practice medicine in the State of Minnesota, to pass an examination before the State Board of Examiners, consisting of members not attached to any teaching school or college, and that such examining board shall issue its license to all who pass a successful examination in the following branches: anatomy, physiology, pathology, chemistry general and analytical,

surgery, obstetrics, diseases of women, diseases of children, epidemic, contagious and malarial diseases, climatology and state medicine and dietetics, leaving materia medica and therapeutics to the individual choice of the licentiates.

Provided, that any graduate of a college recognized by said examining board who has been reputably in practice in another state or country for a period of five or more years, and produces properly authenticated vouchers from the State or Provincial Medical Society representing the profession in said state, country or province, shall be granted license to practice without undergoing technical examination before the board of examiners.

The Society voted to consider the report by items. After discussion by members and explanation by Dr. Leasure, chairman of the committee, the admendments to the Constitution and By-Laws were unanimously carried.

The resolution in regard to the change in the social features of meetings was, after discussion, laid on the table.

The resolution in regard to Medical Education was discussed at length by the Society. Dr. J. T. Moore offered the following amendment:

That three sessions of six months each be required to render students eligible for final examination and graduation in medicine and surgery, and that all such students be required to pass their final examination for degrees in medicine and surgery before the State Board of Medical Examiners, and after having passed such examination satisfactorily to said board, they, the said students, shall be referred back to the board of trustees of school where said students have received their education for diploma of said school.

After further discussion, the amendment was accepted and the resolution as amended was adopted.

Dr. J. H. Murphy asked all graduates of Rush to contribute one dollar to the Rush monument fund.

Dr. Merrill then read the annual essay.

The Society then proceeded to the election of officers. The result is shown on page 2 of this volume.

Adjourned.

The afternoon was occupied with the work of Sections.

FRIDAY AFTERNOON.

The Society was called to order at 5 P. M. by the retiring President. Dr. Kimball, the incoming President, was then conducted to the chair and thanked the Society for the honor conferred.

On motion, it was voted to make the office of Secretary permanent, with a salary of $100 per year.

Adjourned.

In the evening the members were the guests of the physicians of Minneapolis at the West Hotel. An elegant and bountiful banquet was thoroughly enjoyed by all present.

Treasurer's Report.

S. B. SHEARDOWN,

In Acct. with the Minn. State Medical Society.

		DR.
To bal. on hand from 1885, - - - -		$430 01
amt. received from initiations and certificates,		175 00
" " for annual dues, 1885, -		376 00
" " from delinquent dues, -		218 00
" " from advertising in Transactions,		90 00
" " from Secretary, - - -		10 05
	CR.	
By paid H. M. Smyth & Co., -	$243 00	
" C. H. Boardman, -	100 00	
" C. B. Witherle (salary),	100 00	
" " stationery, postage, etc., - -	29 95	
" H. M. Smyth & Co., -	18 00	
" W. T. Rich, - - -	3 00	
" C. H. Boardman, postage and stationery, - -	2 00	
" S. B. Sheardown, printing, postage and stationery,	25 00	
Bal. on hand, - - -	778 11	
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Minneapolis, June 19th, 1886.

S. B. SHEARDOWN, Treasurer.

The following appointments have been made by the President since the meeting of the Society:

Executive Committee.

S. C. McCormick, Chairman.

A. F. Ritchie, C. F. McComb.

Committee on Finance.

A. Macdonald, Chairman.

J. M. Cole, Philo E. Jones,

Wm. Newhall, T. W. Sheardown.

Committee on Necrology.

Daniel Leasure, Chairman.

W. S. Laton, H. L. McKinstry,

W. Thorne, J. W. B. Wellcome.

Committee on Publication.

A. E. Senkler, Chairman.

G. A. Renz, H. B. Cogswell,

S. B. Sheardown, C. B. Witherle.

Essayist—Frank Allport.

Alternate—J. F. Fulton.

PRESIDENT'S ADDRESS.

Fellow Members of the Minnesota State Medical Society:

In accordance with established usage, it becomes my duty as retiring President, to present to you an address, the purport of which shall be pertinent to the purposes and aims of Medical Science. In performing this duty, I fully realize the fact that I am traversing ground long tilled and thoroughly impressed with the foot-prints of men, whose ability and experience far excells mine. Thus assuring you that you will not be made acquainted with any newly discovered facts, or given the results of any valuable observations, I reluctantly comply with the unwritten law of our Association.

It has been well said that "it is wise to talk with our past hours to see what reports they have borne to heaven and how they might have been bettered." In this spirit I present the following imperfectly prepared and matured thoughts for your consideration this morning.

This is an age of wonderful progress and the medical profession in all its branches has kept fully abreast with the age. I know of no people that can more fully appreciate this thought, than the inhabitants of this beautiful, substantial, pushing, prosperous, and growing manufacturing, if not also the commercial, center of our commonwealth, and of the wonderful Northwest—Minneapolis,

where we have to-day convened in our eighteenth annual session.

The genius for true scholarship in the medical profession, to-day, the wide world over, is the eager search for medical truths. Wherever the spirit of rational medicine prevails, there we will find the result of scientific observation and experiment laid a free offering on the alter of suffering humanity. "The proper study of mankind, is man," made in the image of his Maker, and only a little lower than the angels. He has dominion over the animal, vegetable, and mineral world, and they are made to minister to his wants and necessities. While the crystal in its sparkling beauty caps the pyramid in the organic world, man crowns the summit of all greatness in the animal kingdom, and the light of his genius, like the light from the renowned Pantheon, comes alone from above, and should be made to shine for the benefit of his fellow mortals. What a fascination in the thought that we may add one link to that mysterious chain of life reaching from the cradle to the grave! With what intense interest, as scientific observers, do we follow the wonderful changes taking place in the human body, as it returns from the pathological to the heathful physiological state!

Our profession deals with a system of rational medicine based upon intelligent, painstaking, careful investigation, analysis, and experiment. Practical tests at the bedside alone will satisfy the progressive medical mind. No false dogmas or fine spun theories can satisfy the matter-of-fact Anglo-Saxon mind of this age. Time and tide wait for no man, and this practical age demands that onward and upward must be our watchword. Eternal vigilance, untiring and unremitting labor is demanded, until we shall have fathomed the professional depths of human pathology, and mastered the etiology of all diseases; then can we apply the prophylaxis and become,

in the true sense of the word, sanitarians and humanitarians.

Medicine is daily becoming a more exact and positive science; the means and appliances for investigation and experiment are rapidly improving in scope and accuracy, and the clouds of secrecy and mystery which formerly enshrouded it, are fast passing away under the sun-light touch of modern research. Theory, unsustained by practical demonstration, is fast losing its hold on this practical age. Facts are what we are now in search of; one fact established by indubitable evidence is worth a thousand theories, however plausible they may appear.

As in the formation of our political system we have drawn upon the wisdom and experience of all former governments to rear a structure which to-day commands the admiration of the world, so the American medical mind has appropriated and utilized the results of foreign scientific research and extracted from it all that is practically beneficial to the profession of our country. Yet we would emphasize the fact that all that is grand and good in our profession has not, and does not, come from abroad.

One cannot arise from reading that most interesting volume containing a century of American medical history without feeling proud of our country's achievements. We need not stop here, for we have that magnificent library at the Surgeon General's office in Washington; the National Museum; the Medical and Surgical History of the late war; the System of Practical Medicine, by Pepper; the Encyclopedia of Surgery, by Ashhurst, with two-thirds of the contributors Americans; and a long list of other recent medical and surgical works, that cause us to feel justly proud of the profession of our country.

The English speaking medical student can to-day get as good a medical education in this country as anywhere in the world. Yea, I believe better, for he has not the

disadvantage of a foreign language to contend with, while he has as able instructors and as good clinical advantages as are had in the best European schools.

Still, we must admit that there is a demand long, loud and deep for more profound learning, more thorough investigation, more minute, accurate, and truthful recording of observations. The profession of to-day will be satisfied with nothing less, and they who are preparing to enter its ranks and aspire to leadership might as well understand this fact at the outset. A mere smattering of knowledge, or cramming to enable them to skim the surface of professional knowledge, will carry them but a short distance from shore, to be eventually swamped when deep water is reached with its mountain billows of competition.

We are, and ought to be, conservative in our thoughts and actions, and our movements should be deliberate and well timed, yet it does not follow that we should hesitate or vacillate in expressing our honest conviction. For we are reminded that the profession of to-day has attained to the prominence it now occupies by slow growths, hard and honest work, often halting, frequently subjected to criticism, sometimes just, but more often influenced by a censorious spirit.

There has been of late years a large accession of active, earnest, well educated young practitioners to the profession of our State, and I assure them that they are heartily welcomed, and can always rely upon the cordial support of every member of the "old guard."

At best, the lot of the young physician is tedious and toilsome, no matter how able or deserving he or she may be. To place obstacles in their upward progress to an honorable position and its compensations is cruel and unmanly; to cheer them on in their profess
kind words and still kinder actions is the

orable and upright senior, and fulfills the golden rule, "Do unto others as you would that they should do unto you."

The field now spread out before us is as some tropical plain, teeming with the richest and rarest flowers, and it is our privilege to pluck the finest and most lovely, wreath them into garlands of immortelles, with which our brows may be crowned by our honoring confreres if we are found deserving.

The study of hygiene has of late entered largely into the work of our profession, and has thereby greatly increased our labors. Sanitary medicine is becoming daily more prominent and urgent, and calls loudly for a separate chair in our medical schools, and we predict that its voice will, in the near future, be universally heeded by our colleges.

We are of the opinion that the successful practitioner of the future will be the one who believes and practises preventive medicine, yet he will not be able to do this successfully until our people have been sufficiently educated in sanitary medicine to at least be willing to learn a practical lesson from a so-called heathen nation, the Chinese, whose family physician is employed to keep them well, not so much to treat them when they are sick. As one factor in this direction State Boards of Health are doing efficient work, and as compared with the boards of other states, ours, in its working methods and in the sanitary laws it has secured, is on a par with any of them. Being a child of this association, its members have always felt and fully appreciated your fostering care and cordial assistance, and shall continue to need your aid and co-operation in this humane work which is found to be constantly broadening and deepening.

As another indication of the present being an age of progress in our profession, I would simply allude to the

fact of the existence in many states of a law regulating the practice of medicine, and that there is an urgent demand in other states and territories for the enactment of similar laws. We admit that in some of the states, as in our own, the law is somewhat crude, but like the proverbial half loaf to the hungry family, it is certainly much better than no law at all.

When the people are convinced of the benefits accruing to them from such laws they will insist upon their passage and enforcement in all our states and territories, and we believe that the time for such an uprising is not far distant. As a legitimate outgrowth of such a movement there will be an urgent call for all applicants for the degree of Doctor of Medicine to submit themselves for examination to the state examining boards before receiving their diplomas. Such an advanced step upon the part of our medical colleges would be highly commendable and place them on a higher plane in the estimation of the laity and profession than they could possibly attain under their present system. We would rejoice to see the young, vigorous, and substantial medical colleges of our own state take the initiative in this progressive movement, and in saying this believe that we voice the sentiment of every member of our society.

Of the advancements made in the various departments of our profession during the past year, I have thus far been silent, and intentionally so, because you have selected other and more able men who are thoroughly competent to present them to you.

In taking a retrospective glance at by-gone years, when ignorance and superstition prevailed, we behold expectation standing on tip toe and gazing wistfully through the misty veil which obscures the hill of science. At a later day we look again, and find that the brilliant light of modern research has pierced that veil, and disclosed

the entire ascent all radiant with new discoveries and inventions with which we may deck the fair brow of the Goddess of Science. We certainly ought to be thankful that we live in such a golden age, and can claim membership to such a God-like profession.

After we have studied the frame-work of God's noblest creature; after we have exhausted all the resources of our science in the vain effort to wrest from the icy fingers of death the strong man in the fullness of years and strength, and he lies before us a mouldering mass of lifeless clay, think not that our task is ended, because our dissecting scalpel reveals no living soul, mind or vital spark.

Let us not read the book of life as the Pagan reads it; but rather look to that endless life beyond the grave where the greatest of all physicians, the head of the profession, stands ready to minister to every pain and ill that humanity is heir to and to administer that true elixir which brings perpetual youth and eternal happiness.

Looking from the standpoint from which I have been permitted to observe the workings of our society during the past year, I would submit the following suggestions for your consideration:

1st.—Because of the frequent complaints made by members concerning the present system of conducting our meetings, it is evident that it is wholly inadequate to meet our present demands. In the past, when our membership was comparatively small, this system worked satisfactorily, but now, with a largely extended list of members, it is apparent that it fails to accomplish the end for which it was intended.

Several plans for the improvement of our working methods have suggested themselves, yet I will mention but one, namely: That the morning session of each day be devoted to general business, the president to preside, and in his absence the vice presidents in their order, and

for the afternoon sessions, that the society be devided into two sections, medical and surgical, the vice presidents in their order to preside over these sections.

I might give many poignant reasons why I consider it advisable that you take immediate action in this matter; but will not, because I know that you realize as fully as I the need and importance of a radical change in our present system.

2nd.—That section 4 be amended to read as follows: These departments shall each have a Chairman and Secretary, who shall be chosen in the manner specified in section 5. That section 6 be amended, after the word "authors" in the ninth line, to read as follows: The Secretary's duties shall be nominal, unless for any cause the Chairman is unable to act, then the duties of the Chairman shall devolve upon the Secretary.

3d.—That the roster be furnished the President at a much earlier date than heretofore after the adjournment of the meetings; so that the appointment of committees may be facilitated; and that the publication committee may begin its work immediately, thus being able to place in our hands the transactions much earlier than we have been in the habit of receiving them. Also that the general work of the society may be begun much sooner than it has in the past. The remedy for this is simple and may be easily accomplished, by having the Treasurer notify, at least a month before our meetings, all members whose names will be dropped from the roll immediately after said meeting unless past dues are paid.

4th.—That I renew and emphasize the recommendation of Chairman of Sections, that we dispense with the annual banquet and thereby make our sessions more social and less convivial. The rivalry in different localities in the elaborateness of the menu and et ceteras, make them burdensome to the physicians where given, many of

whom can ill afford the expense, and could make a much more profitable investment of their per capita tax. There are a goodly number of our members, possibly a majority, who do not approve of the use of these et ceteras, and their conscientious convictions, though not openly expressed, are deserving of thoughtful consideration by this association. Then we have a large number of young men in our organization, and possibly others, who are easily tempted; because of these, we seniors at least, have a grave responsibility thrust upon us, and should be made to realize the fact that we teach by example as well as by precept.

ESSAY.

MEDICAL ICONOCLASM.

BY B. J. MERRILL, M. D.

The science and art of medicine has unraveled itself from a labyrinthine net-work of clinging ivy and varied parasitic growths of a tropical forests of exuberant and overgrown vegetation within a comparatively late period, commensurate and hand in hand with the marvelous activity and scientific trend of the mind and civilization of the nineteenth century. From chaos has come partial order. From the dark mists and thunder clouds of the middle ages, when learning in general lay dormant—covered leagues deep by a false theology, a false scholasticism, a false logic, a false metaphysics; when learned doctors lay claim to the title through the facility with which they juggled with the abstruse subtleties of Aristotelean logic and Platonic platitudes, and bound all knowledge in a spider's web of intricate dissentions, thus rendering the unknowable still more intangible of solution; when feudalism was in ascendency, and clan fought with clan and principality with principality; when the inherent superstition of mankind relieved of the governing influence of a stable and pure faith and the quieting knowledge of the law of cause and effect, ran riot—the emotional faculties over-riding the will, fear and pleasure dancing furiously the carmagnole of death; when salvation was sought through and from man, not God; when miracle,

relic and saint worship absorbed the devotional instinct of man, and the chief end of each individual in this life was to secure by immolation the joys of eternity; there has come a light that is brilliant and intoxicating. Like all knowledge this result has been obtained by the most energetic, sacrilegious and painful image breaking.

The development has been slow and beset with many difficulties. Like the fabled road to the kingdom of heaven, the weary traveler's feet have come in contact with many narrow deviations and mountainous tracts—thorns have pricked him, sharp flinty stones have lacerated his ill-shod feet, and many a poor devotee of science has been torn to pieces by the furious mountain lion of fanaticism long ere he neared the end of his cruel pathway. He has fallen by the wayside, his aspiration and life's ambition not completed; his eyes have not been greeted with a glimpse of the glittering palace in which true science sits enthroned. His life and work has been worthy but fame is not his. He has played his part in the tragedy of existence and his bones bleach by the side of the myriads of human insects which have been integral factors in the building of the coral reef of civilization and exact knowledge, which has so slowly arisen from the depths of the sea of ignorance and superstition till at last its fair walls have reached the surface of a calm sea and are bathed in the warm sunlight of modern learning, and is lapped and lulled to sleep by the music of the rippling waves of reason, its embankment moistened with the holy water of a chastened and beneficent theology. He has filled a most essential part. His function in life may be likened to the grim and bloody destiny of the warm patriot of the French Revolution whom the Committee of Public Safety had decreed "to the guillotine," not for cause, but that his blood and life is necessary to the continuance and existence of the republic, that death must precede a new life, that the thirst of a demoniac commune

for blood must be satiated or the stability of the struggling republic will be endangered.

Through turbulence comes the calm; from the dark thunder clouded day of the past the way is strewn with the work of the iconoclast, attained through privation, suffering and death. At first the wrecked images are in class like the hideous monstrosities of Pagan idol worship, and the incentives to their destruction came through the rude semi-civilized people existing at the time. Later, as the images become polished and of fair and comely exterior, and their worship upheld by a finer and more abstruse dogmatism, their breaking necessitated a corresponding learning and acuteness of intellectual powers, with a longer and more bitter contest.

Medicine presents an excellent illustration of the development of a partial science from chaos and crude empiricism. This development has been slower and less complete than that of many of its sister sciences because of its close alliance to the life of the individual. While astronomy, physics, chemistry and geology deal with facts appertaining to reason and judgment without the element of personality, medicine, on the contrary, has to do with the comfort and well-being of the family and race, and each change in its method involves the breaking of a strong habit, prejudice and superstition in the people at large as well as of the masters in the science.

No science is so incorporated and intimately bound up in the inherent superstition of the individual as that of medicine. That superstition that is forever, now as of old, seeking the miraculous; that seeks to touch the hem of a garment worn by a Christ that the individual may be healed of a bodily infirmity; that renders the so-called "faith cure" seductive; that makes the seventh son, however ignorant and dirty, possessed of a mysterious power that cures by the laying on of hands; that sends the multitude in an eager, chattering crowd to the door of the

charlatan and quack where you see in juxtaposition the ignorant tramp, on whom the light of learning has never shone, with the learned doctor of divinity whose life has been spent in the systematic illumination of his intellect.

From the day of the dancing dervish and medicine man to the date of the rule of the lancet and drastic purges there is a wide interval. From the latter to the present day, with its multiplicity of remedies and an artistic pharmacy, with drugs administered in accordance with a scientific knowledge of their physiological and therapeutic effect, as well as the pathology of disease, there is another wide interval. But still we are crude and empiric in much of our knowledge.

An eminent physician relinquished a practice of thirty years with the remark, "I am weary of guessing." A conclusion no doubt satisfactory to the elastic conscience of the individual, but a great profession is not so easily absolved from its responsibilities. We must ever seek to glean stable facts and draw permanent conclusions and formulate laws from the enormous mass of guesses, crude and ingenious, mediocre and subtle, that are annually made by our glorious profession. The intellectual shadow-worship of dogmatic idols, the hypotheses advanced by the masters in our profession, should ever be subjected to criticism, and the moment we find them falling short in their application we should ruthlessly break them and earnestly seek for a new working hypothesis.

The iconoclast of to-day must be of the schoolmen, trained in physics and metaphysics, well versed in logic and a disputant. He must also possess certain essential and natural qualities, as quickness and acuteness of perception, accuracy in detail, and truthfulness and fairness to his fellow students.

For the objective sphere of science, or the observation of external facts, plays a most important part in medicine. It is this close observation of external facts that frequently

enables the ever present old woman of the sick room to worst the young and theoretical Esculapius in many a practical point conducive to the comfort and well-being of the patient. True, the young man fresh from the university has his regional anatomy correct and he can explore with accuracy the most hidden parts of the organism and determine with reasonable certainty the morbid changes going on within them; anatomical and histological post-mortem investigations have supplied him with a clear basis upon which to classify disease, and have given him an unerring test of the accuracy or inaccuracy of his diagnosis; with this pure knowledge he can inform his suffering patient with great gusto what is happening and what is likely to happen in those deep concealed organs that have so sadly gone astray; he can register every stage of the morbific process and pretty clearly predict how it will end; this with great satisfaction to himself, but questionably so as regards the patient. But what avails this knowledge without a clear intellectual vision of the chain of causation involved in this morbific process. Here we find our young man weak, and placed side by side with the empiric and non-scientific practitioner in the conduct and treatment of a case he acquires little distinction and preference with the "dear public." Is it strange that the cynic raises his harsh and strident laugh and compares the struggle between "nature and disease to two men fighting, the doctor to a blind man with a club who strikes into the melee, sometimes hitting the disease, and sometimes hitting nature." But the young man must not be abashed by the laughter of the multitude.

There is no science which receives so little public interest and support as medicine, and yet of which so much is expected and required by the individual when perchance he falls within its domain as a proper subject for its practical application.

The modern practitioner of medicine is called upon to

decide between this hypothesis and another, and public thought generally will afterwards be called upon to do the same. But, however the conviction of individuals, the process must be slow and painstaking. Each hypothesis must be brought before the bar of disciplined reason, and thus justified or condemned. Let us listen to those who wisely support a hypothesis, and to those who wisely oppose it; under the fierce light of scientific enquiry it is sure to be dissipated if it contains not a modicum of truth.

We should have but one desire—to know the truth. The conscientious iconoclast should be saturated with this desire and dash to pieces an image which he has habitually worshipped when he finds it deficient, even though it tears his heart strings asunder.

For the proper breeding and nourishment of such iconoclasts allow me to call your attention to an essential prerequisite. This is an absolute and destructive reform in the manner and method of medical education as exhibited in our country. Here is excellent angling for our iconoclast. The brook is full of trout from time immemorial unmolested. The crockery is thin, and the noise of its smashing should be heard throughout the land. The requirements of our medical colleges must be made higher. This will never be accomplished by the so-called "moral pressure." As long as the birth of a medical college is so easy, and as long as its existence depends upon the fees of its students, they will multiply in number and graduate all that apply, regardless of prior education or fitness. State regulation and endowment will alone solve the difficulty. Young men yearning for a life, as they think, of more prominence and dignity than that afforded by the mechanical trades, will continue to flock to cheap schools where two short terms, no preliminary requirements, a little dissection, stereotyped lectures, a farcical examination, a ridiculous thesis, will suffice to give possession of a diploma conferring upon them the

degree of doctor of medicine. Out into the world they go, wards of a confiding and precious public, never having seen a pneumonia, a typhoid fever, a case of measles or a natural labor. Is it any wonder they are likened to a blind man with a club? The towns are over-populated with doctors. There is no country in the world where the proportion of M. D.s to people is so great as ours. Crowded together, bread and butter a necessity, starvation not many leagues in the distance, a grand rush for the survival of the fittest is made, and the devil take the hindermost is the accepted code of ethics; petty jealousies arise, unjust criticism of each other is frequent, they become the laughing stock of the community and the personal dignity of the profession deteriorates sadly in their hands. The old time picture of the family physician, learned above the majority, well dressed and neat, courtly, a face indicating gravity and intellect, a gentleman par excellence; the life-long friend of the family through adversity and prosperity, health, sickness and death; in whom the family have placed implicit trust, and have given as sweet incense homage and honor from the very depths of their hearts, is fast fading away like the last red glow of a western sunset. We should retrieve this lost respect and dignity. But we may congratulate ourselves that out of this mass of glacial drift rock we may occasionally find an intellectual diamond; that from the enormous mass of "dead work" constantly being accumulated by this army of half-educated doctors of medicine may be sifted that which is good and permanent.

The scientific mind of to-day is eminently practical, and we may look with not a little interest to the slow but sure tendency of the iconoclast to back-slide from the domains of spirit influence and mystery to that of unfeeling matter and physical forces. In biology, handmaid to physiology, we have the microscopist with his emotionless and faithless instrument, guided by a stoic brain,

sternly regarding life in the form of a cell. He has run the thing down as he thinks. He has effectually cornered it. Unlike the dazed astronomer, who gets more and more at sea the further he penetrates the nebulæ, he takes life in all its phases and forms, animal and vegetable, connective, adipose, nerve and woody tissue—tears it to pieces and the inevitable result is a cell. This cell contains protoplasm, and a nucleus, and a nucleolus or germinative spot; it is an aggregation of the molecules and each molecule a peculiar combination of atoms—from which spring varied and individual life. We are thus fain to conclude that "the same forces which whirl suns and planets in a restless march through shoreless space, measure the phenomena of life as well." As individuals following the fortunes of a grand and glorious profession we must delve and assay in the rich lode of clinical facts as the intelligent metallurgist, ever keeping the stern religion of truth before our eyes. With the knowledge of the past unfolded, and that of the present systematized we may approach the future and work and dream in all the exquisite flavor of Goethe's muse:

"Heard are the voices,
Heard are the sages,
The world's and the ages,
Choose well, your choice is
Brief and yet endless."

"Here eyes do regard you
In eternity's stillness;
Here is all fullness
Ye brave to reward you,
Work and despair not."

PRACTICE OF MEDICINE.

A. E. SENKLER, M. D., CHAIRMAN.

CHAIRMAN'S ADDRESS.

Gentlemen:—As practitioners in medicine we are, in these progressive days, constantly being reminded that our field of labor is gradually becoming contracted—that is boundaries are steadily becoming encroached upon.

For a long period of time we have been content to surrender to the tender mercies of the surgeon, all sufferers who for their relief have required procedures operative or purely mechanical.

As the surgeon's art advanced, both in science and practice, *his* demesne began ere long to suffer partition—sundry votaries, possessing peculiar knowledge and skill in the management of certain classes of disease, electing to *limit* their practice — cases within these "limits" being graciously commended to these gentlemen by the general surgeon who, by so doing, diminished his own scope.

We also have, equally with the general surgeon, given up to these "limited" gentlemen much which we formerly regarded as our own property.

Next among our very selves have some come to restrict their work to certain affections of the body, and have of necessity abstracted their clientele from that of the general practitioner. Lastly must we admit that, as Dr. Senn boldly asserted in his address on surgery at the recent meeting of the American Medical Association in St. Louis,

the general surgeon has taken one further step into our prerogative, and now opens the abdomen to cure by mechanical means what we have striven to relieve with our more gentle medicinal measures.

In short we may now say that *we* are "limited" in our practice—passively we are ourselves virtually "specialists."

"The tendency of medicine in this generation is primarily towards analysis." Accuracy in diagnosis becomes more imperative as it becomes more possible. It behooves us in this age to be precise in analysing our cases—be it only to become convinced that they are really ours, and that we may venture to undertake their management without offense.

But in all seriousness and in very truth our "limited" brethren do set us a good example in two particulars:

First, in their use of the mechanical means of assistance in diagnosis at their disposal; and *second*, in the careful record they so usually keep of their cases.

In a retrospective view of a number of years of his professional life almost every practitioner will, I think, be impressed by the fact that one most valuable physical aid to diagnosis is employed now much more frequently and thoroughly than in the earlier period of his practice. I mean urinalysis, chemical and microscopical.

But a few years ago, comparatively speaking, we were content to test the urine occasionally for albumen when we had very convincing reasons for believing, or had perhaps made up our minds already, that the patient before us had Bright's disease of the kidneys; or to test for sugar when we were told that he was passing an excessive quantity of urine. Now, with the careful practitioner urinalysis is a matter of almost daily occurrence; and yet I am sure that we are all still much too negligent of this invaluable help to diagnosis, and to urge reasons for its more frequent use is the chief purpose of this paper.

When a palpable case of Bright's disease, with unmistakable symptoms, presents itself before us, we are, any and all of us, sure to procure with dispatch a specimen of the urine and to proceed to test it for albumen—and yet what is the profit either to the patient or to ourselves beyond a confirmation of the unhappy diagnosis. True, by daily measuring the amount of albumen and by watching the character and number of the casts, which probably accompany the albumen, and by daily estimating the quantity of urea, we may be enabled to hazard an approximate prognosis.

But, if on the other hand, we make it our general practice in *all* chronic cases to have a urinalysis made, we shall not infrequently detect a nephritis, in its incipiency, which, by wise medication and a scientific dietary, may be at least controlled for perhaps many years.

Dr. Mahomet found that in one hundred cases of post mortem examination where granular kidney was revealed, that in only twenty-six had an ante mortem diagnosis been made. He even thinks that eighty per cent. of those who die of chronic Bright's disease do so with the cause of death unrecognized.

Bartels says that albuminuria is no constant symptom of this form of the disease, and that a microscopical examination of the sediment is the only means for an early diagnosis. This fact must be borne in mind in investigating our cases—nor must we forget to separate those comparatively sure examples of physiological or "cyclic" albuminuria.

When a man comes to us with the odor of acetone surrounding him like an atmosphere, we never fail to make a quantitive analysis of the sugar in his urine; but aside from being a scientific experiment, this procedure has little value.

Did we systematically test the urinary secretion of our

patients suffering from "mild ailments" how often should we reveal a glycosuria, possibly curable, certainly controllable? Are we attending a case of scarlet fever, and in course of time observe that the face is puffy, of course we immediately boil the urine and find it, mayhaps, more than half albumen. The knowledge is doubtless valuable, but we should have been in possession of it some days before, for it is our bounden duty to detect the slighter degrees of nephritis in scarlet fever.

So frequent is this complication that certain authorities (German) maintain that renal catarrh is as constant in scarlet fever as is bronchitis in measles. Dr. Dickinson (London) speaks of it as an "integral part of the disease." That it usually disappears with the febrile symptoms we know, but in a very considerable number of cases it persists and progresses, and that without obvious symptoms. There is but one way to distinguish these cases, and that is by systematic urinalysis.

In a paper read by R. Stevenson Thompson, M. B., etc., before the Royal Medical and Chirurgical Society of London, Nov. 10th, 1885, the results of no less than 35,000 testings of the urine of 180 cases of scarlet fever are given. Albuminuria and other indications of nephritis were found in about sixty per cent. of the cases. In the discussion following the reading of the paper it was declared by more than one eminent authority that, by our early detection of these persisting cases of nephritis referred to above, the inevitable consecutive vascular changes might be warded off in many young persons.

Not only in scarlet fever ought we to be on the lookout for nephritis. It is now well established that this may be a complication or sequela of other exanthemata, as, for example, measles; and during the past year Dr. Hogyes has found that it even follows variola. That nephritis may occur in typhoid fever there can now be no doubt.

There is a state of the system, physiological rather than pathological, which, although beyond the pale of our committee, I cannot refrain from mentioning, as it is so frequently associated with nephritis. I refer to pregnancy. It is referred to for the purpose of once more urging that the urine of every pregnant woman be tested from time to time.

In both functional and organic diseases of the liver—that great "gate" of our bodies, upon whose integrity not only the *health* but the *happiness* of the individual is said to depend, that organ which in itself affords us so few physical signs of a departure from the normal,—we may derive great assistance in diagnosis from urinalysis. The amount of bile-pigment in urine is an index of that in the circulation; it appears in the urine before jaundice shows in the skin, and its disappearance from the urine shows that the cause of the jaundice has ceased, even while the skin and conjunctiva are yellow. I may remind you that leucine and tyrosine are found in the urine in acute yellow atrophy.

The close relationship between the formation and excretion of urea and uric acid with the amount of biliary secretion has been elaborated by Dr. D. Neil Paton, biological fellow of the University of Edinburgh, during the past year and his deductions are most suggestive.

He has shown that an increased flow of bile is accompanied with increased excretion by healthy kidneys of urea always, and usually of uric acid. The amount of these substances does not fall much below the normal on stopping the hepatic stimulant, so we may infer that there has been increased production, not merely increased excretion.

This physiological proposition suggests two pathological corollaries, viz: *First*, that estimating the quantity of urea excreted by healthy kidneys may enable us to

measure the activity of the liver. And *second*, that knowing the kidneys to be diseased, should we not avoid stimulating the liver?

In all cases of acute and chronic nephritis a knowledge of the amount of urea daily excreted affords material aid in judging of the progress of the disease. There is also a class of cases—people in indifferent health, with no very obvious symptoms, nothing pathognomonic in which a careful and repeated quantitive analysis of urea will sometimes discover that state of affairs, designated by Sir Andrew Clarke "renal inadequacy"—a condition made bearable by judicious regimen.

Lastly I would remind the members of the society that the *interest* in urinary deposits and in the specific values of urates and phosphates as related to disorders of digestion and assimilation which were so faithfully studied by Prout, Golding Bird and Bence Jones many years ago, is now being revived; and it becomes us to carefully observe these physical characters of urine, and to compare them with the clinical aspects of our chronic cases.

EMBOLISM.

BY J. W. THOMPSON, M. D.

The detachment of fibrinous deposits from the interior of the heart is an occurrence so thoroughly recognized and understood by the profession that it seems almost superfluous for me to invite your attention to this subject. The cases to which I especially desire to invite your attention contain nothing that has not been carefully canvassed by more competent observers than my-

self. Yet aside from the interest they may possess for the ophthalmologist they are sufficiently rare from a broader stand-point to possess also much interest for the general practitioner. It could scarcely be considered a presumption in me to believe that you will readily pardon me for being found occasionally outside of the strict limits of my specialty discussing matters that are of vital interest to both you and me. The links that connect diseases of the eye with systemic diseases are numerous. To understand and to treat diseases of the eye intelligently and successfully requires a theoretical and practical knowledge of the treatment of systemic diseases.

Embolism is only a symptom, and it is not infrequently seen by the ophthalmologist in the early stages, from the very fact that small arteries, such as the retinal, are often obstructed first.

The very circumstance of the existence of an embolism, whether it be of the retinal artery or of any other, presupposes at least a disease of the heart or large arteries. One of the cases to which I shall directly invite your attention proved to be only a symptom of an existing endocarditis. In this disease paresis of the heart constitutes the actual danger while valvular lesions form the ultimate danger. In the beginning of endocarditis, before there has been any detachment of vegetations to obstruct even small arteries, the functional disturbances and subjective symptoms have no well marked characteristic features. The most of them appear either isolated or combined in other diseases of the heart and its envelopes; or even in the affections of distant organs. It is then upon the physical signs alone that a diagnosis can be founded since the antecedent symptoms can only furnish presumptive evidence as to the nature and seat of the lesion. The symptoms of endocarditis and pericarditis so closely resemble one another that they may be confounded, and can only be accurately distinguished by

means of auscultation. The auscultatory signs by which a differential diagnosis can be determined are as follows: "In endocarditis the murmur is synchronous with the first sound of the heart, and does not occur with the diastole unless regurgitation takes place through the aortic or pulmonary semi-lunar valves, and the murmur is heard loudest at the apex of the heart." "In pericarditis the murmur is not exactly synchronous with the valvular sounds and often occurs during both the systole and diastole of the heart, and the murmur is heard loudest at the border of the sternum, near the fifth left costal cartilage." This affection of the heart is frequently caused by rheumatism, chorea, pyæmia, or the acute exanthematous fevers (Ingals).

In endocarditis numerous vegetations accumulate on the surface of the aortic or mitral valves. These vegetations become detached and float about in the circulation, occasionally plugging up small arteries, and when large enough, larger arteries become obstructed by them. The secondary affections that may result from this infraction of different arteries by these detached vegetations are: loss of vision from obstruction of retinal artery, gangrene of a leg or an arm by cutting off the circulation, swelling and inflammation of the spleen, acute atrophy of the liver, pneumonitis, cerebral disease, etc.

CASE I.

A man, Mr. L. C., aged about 30, of very stout build, a carriage ironer by trade, and with an excellent family history on both sides, consulted me on account of a very sudden blindness of his left eye. Up to this time he had enjoyed very good health with the exception of a slight attack of rheumatism which had occurred a few weeks before I saw him. From this, however, he seemed to have fully recovered. On opthalmoscopic examination

I observed the very characteristic appearances of an embolism of the retinal artery. The optic disc was quite pale and transparent and the arterial vessels thin, and here and there changed into white bands, with an occasional red plug of coagulum.

The media were quite clear. In the course of a week or ten days there was a well marked improvement, absorption having taken place, and the circulation in the retina began to be re-established with a return of a considerable amount of sharpness of vision. In the course of a week or ten days vision in this eye had so far advanced that he could see to go about very comfortably. The other now became affected in a like manner and pursued a similar course. When this one began to improve the one first attacked had very nearly recovered full sharpness of vision. Examination by auscultation revealed, but not clearly, what seemed to me to be an endocarditis. I consulted a brother practitioner, for whose opinion I entertained much respect, and he confirmed my diagnosis. In a few days the physical signs of endocarditis became better marked, when he was suddenly seized with a severe pain in his right arm which extended from a short distance above the elbow to the wrist and hand. I was called to see him in bed very much prostrated with the pain. The arm was much cooler than its fellow, and almost or quite pulseless. There was a knotty tumor in the brachial artery near its bifurcation. The circulation in the radial and ulnar arteries was entirely cut off. For the relief of the pain I employed a hypodermic injection of morphia, applied warm, stimulating embrocations, and encased the arm in cotton wool. I prescribed large doses of bicarbonate of potash with the view of rendering the small pieces of coagula that might yet be floating about in the circulation more soluble. The next day, notwithstanding the arm had been maintained in the horizontal position and kept under the bedclothes, with the application at intervals of

every hour or two of warm stimulating embrocations, was quite pale, cool, shrunken and pulseless. In short, the vitality of the limb was with difficulty preserved through the timely efforts of the anastomosing branches. The recovery was slow, but on the whole satisfactory. The pulse by degrees returned, but up to the time I saw him last, which was two years from the date of the attack, was perceptibly feebler than the left arm. This arm, he informed me, always became cold much easier than the left, and in consequence of this was obliged to keep it clothed warmer than its fellow. The strength had very materially increased, so that he could support nearly as heavy weight with it as with the other, but for a much shorter time.

CASE 2.

A married lady, Mrs. E. H., 27 years of age, became a patient of mine in October, 1865. She had been under the care of a neighboring physician for some weeks. Since he expected to be absent from home for a protracted period, he requested me to take charge of her case. He informed me that about four weeks since she had aborted at or near the fourth month of gestation. The placenta had never, to his or the patient's knowledge, come away *en masse*. As a result of this she was then suffering from septicæmia which confined her in bed for a period of five or six weeks from the first date of my attendance. Several large abscesses formed in the region of the hips. During this time she became very suddenly blind in her right eye. The sight of this eye was never recovered. A subsequent ophthalmoscopic examination demonstrated that this had been the result of an embolism of the retinal artery. In about four weeks from the date of the loss of the eye, she had sufficiently recovered health and strength to enable her to be out of bed and about the

house a good share of the day. At her urgent request her nurse gave her a warm sponge bath. The next day I was called to see her and found her pulse somewhat over one hundred, her tongue tremulous and slightly furred, her bowels constipated and her skin hot and dry. The sounds of the heart were normal. In the lower part of the right leg there was but little feeling. The foot was cold, shrunken and livid. At the lower end of the middle third of the femur there was a hard knot or tumor which was sensitive and painful. There was no circulation in the limb below the tumor. The pulsation of the femoral artery above the tumor was very feeble and easily compressed.

This state of affairs continued for five or six days when the limb below the knee became gangrenous. The line of demarcation formed close to the knee joint. She was at this time very considerably reduced in strength and I entertained very serious doubts as to her recovery or even her ability to survive an amputation of the limb. By the request of the patient's relations the late lamented Dr. W. H. Mussey of Cincinnati was called in consultation. Notwithstanding the very much reduced condition of the patient's strength, he advised the immediate amputation of the limb well above the line of demarcation.

He also entertained very serious doubts as to her surviving the operation, but of course, it was the only procedure that offered the slightest prospect of relief. Accordingly the limb was amputated. Before trying the arteries, plugs of coagula, one or two inches in length were drawn out of each artery. The stump did badly for two weeks discharging large quantities of pus. The flaps sloughed some but finally united. The sloughing and suppurating gave rather an unsightly appearance to the stump but it finally became sound and proved to be a very useful one. The patient became hearty and robust and continued to increase the number of her family for

several years thereafter. The cause of the embolism in this case seemed to be due directly to the septicæmia since there never appeared any heart complication. Dr. Mussey reported the case in a clinical lecture to his class in the Miami Medical College. I preserved his remarks for a long time and thought, when I commenced preparing this paper, that I should be able to avail myself of his valuable observations, but the document had become misplaced and I am obliged to forego both the pleasure and the profit thereof. Perhaps some of the older members present may have seen his report and remember more of the details than I have recited. I have often debated the subject in my mind whether the warm sponge bath had any direct agency in producing the embolism or whether they were only cotemporaneous events.

PNEUMATIC THERAPEUTICS.

BY H. M. BRACKEN, M. D.

Pneumato-therapeutics treats of the use of atmospheric air as a curative means by artificial changes of its density. This air of increased or diminished density can be applied to the whole or part of the body.

The subject is one which has occupied the medical mind periodically for nearly a century. In 1800 the Royal Society of Haarlem proposed as a subject for competition, "The influence of condensed air on animal and vegetable life." Nothing of value was elicited. Again Sir John Sinclair, following observations upon lower animals, suggested the application of condensed air in the treatment of human disease. In 1835 M. Junod made

the first authentic experiments as to the influence of compressed air on the human body. Magendie and his colleagues reported adversely upon M. Junod's conclusions, but at a subsequent period the French Academy, with full appreciation, reversed its verdict and awarded a medal of honor. Attention became fixed as to the significance of pneumatic therapeutics.

Definite treatment by immersion of patients in reservoirs of compressed or rarefied air, was conducted from 1850 to 1857, in Tabarie's spheres and other similar appliances. Tabarie's spheres were of iron and would hold from one to twelve persons. He advised sittings of two hours duration with an increased pressure of from one-half to two-thirds of an atmosphere. Bertin, who used these spheres, reported the cure of fifteen cases of uncomplicated emphysema, and of ninety-two cases of nervous and catarrhal asthma with associated emphysema. Air chambers, cumbrous, expensive and not portable, were thus far used.

Another method is that invented by Hauke, called by him the "Warme" or tub. In following out this method a rubber hood, closely fitting about the head and leaving the face only exposed, comes down over the shoulders like a shirt. The patient is then made to lie down in the tub, having a closely fitting rubber cover, which encircles his neck, and the hood is then fastened to the edge of the cover by means of an elastic band. The air is then partially exhausted from the interior of the tub, which decreases the atmospheric pressure over the surface of the body, with the exception of the face. The inspiratory act is greatly facilitated, due to the increased pressure of the outside air upon the lungs from within, whereas the expiratory act is proportionately increased, and a calisthenic action of the lungs and chest walls is thereby obtained to a greater degree than by the ordinary respiratory movements.

Various portable instruments have been devised for the inhalation of compressed and rarefied air, such as that of Waldenburg. This, approaching the mouth only on inspiration or expiration with a column of condensed or rarefied air, does two things: 1st. It affords either an increased or diminished supply of oxygen; 2d. It produces increased or diminished pressure on the interior of the air passages and pulmonary vesiculi.

The apparatus used by Solis-Cohen resembles that of Waldenburg. He advises the *inhaling of compressed air* (at a pressure of from 1-80 to 1-30 atmosphere) in the treatment of early phthisis, chronic bronchitis, partial collapse of lung sometimes following pneumonia, and all those cases where it is desirable to augment the vital capacity of the lung, except in those instances where there is a strong disposition to hemorrhage.

The immediate effect of *expiring into compressed air* is to impede that portion of the respiratory act. This will tend to dilate the air cells and rectify collapsed lung by *backward* pressure, accomplishing the same results as *inspiration* of *compressed air*, the only advantage gained being in the muscular effort necessary to breathe into compressed air. The therapeutic effect of *inspiration of rarefied air* approaches that produced by residence at high altitudes. The immediate effect of *expiration into rarefied air* is to exhaust a portion of the residual air in the lungs, and thus favor the collapse of the distended air cells. The indications for the practice of this method are found in asthma and in pulmonary emphysema, and here Solis-Cohen says the home treatment by apparatus may be more efficacious than change of climate.

The Pneumatic Cabinet of Ketchum and Williams accomplishes all that the instruments of Waldenburg and Solis-Cohen can, and further removes pressure from the peripheral circulation of the entire body, inducing determination of blood away from the internal viscera to the

surface, drawing the chest wall outward and increasing its capacity. This being done at the same time with inspiration of atmospheric air (relatively condensed air), dilates the bronchi and vesicles and compresses their vascular channels.

The promise of increased chest capacity and the reopening of contracted tubes and collapsed alveoli is very great. Beside the continued use of compressed or rarefied air, there is a device by which alternate rarefaction and condensation can be made synchronously with the respiratory act. This calisthenic action can be used at the discretion of the attending physician. The cabinet is made of iron. In general shape it resembles a safe with a window in front. In size it is about five feet high, two feet wide, and two and a half feet from front to back. It is entered from the back by means of a door furnished with heavy bolts and rubber packing, which is moved easily with one handle and can be opened instantly. In the front, passing through the window already referred to, is a fixed, short, gutta-percha tube, having on the inside a stop-cock and ending in a trumpet shaped opening. The inner end is fitted with a movable rubber tube for the patient to breathe through.

In front is a manometer gauge filled with mercury to the zero point and graduated to 1-10 inch. This is connected with the interior of the cabinet, and shows the amount of atmospheric pressure. On the top of the cabinet is a bellows, whose interior is approximately 1-30 of its cubic capacity. The interior of the bellows, by a valve in its floor, communicates with the interior of the cabinet, and by another valve in its upper side with the outside air. It is operated by a rock shaft. The degree of rarefaction of the air in the cabinet varies, as shown by the manometer, from 1-10 of an inch to one inch, equal to 1-300 to 1-30 of an atmosphere.

So far we have had to do only with air of different den-

sities, but now another element comes in, viz: the respiring of medicated vapor. This is accomplished by means of an ordinary atomizer which delivers its spray directly into the mouth of the breathing faucet. With ordinary inhalations it is difficult to bring the medicated vapor into contact with more than a very limited part of the air passages. Here the cabinet is at great advantage, for under given conditions of temperature air of normal density affords its best vapor carrying capacity. Antiseptic air thus administered must condense at the instant of increased pressure due to the active expiratory effort.

The results sought for by the use of the cabinet are:

1st. The strengthening and developing of weak and poorly expanded lungs.

2d. The arrest of pulmonary disease in its earliest stages.

3d. The prolongation of life with comparative comfort in those cases of pulmonary disease in its later stages, where a cure is impossible.

In the majority of cases daily applications are advisable —each one occupying from ten to thirty minutes.

The principal agents used in the spray are bichloride of mercury, iodine and carbolic acid, but others of course may be used at the discretion of the physician.

The class of diseases treated and the results are given in the following table:

Dr. Williams gives a very interesting report of sixty-two cases treated previous to January 17, 1885. Some of these were chronic phthisis. Two died whose recovery might almost have been expected. After marked improvement one died from the effects of a trying sea voyage, the other had a relapse after unnecessary exposure. There were five cases of recovery from acute phthisis, one of these having had as high as one hundred and five treatments.

I cannot do better than quote from a letter of Dr.

Williams concerning some other important facts connected with the use of the cabinet. In one case there was destruction of the bacillus after several months treatment.

Dr. V. Y. Bowditch reports one case where he exterminated the bacilli.

Dr. Trudeau another where there was at least a temporary absence of the microbe.

There seems to be a growing impression with some that we must ultimately give up the hope of ever making efficient topical applications. Mr. Ketchum (Record, Jan. 9, 1886,) has plainly shown our limitations so far as moist medicaments are concerned; and it would seem, as regards intra-alveolar medication, that we can at least depend upon sufficient condensate to effectively sterilize against impending tubercular infiltration. Demonstrable tubercular infiltration is a long way past the first stage of phthisis. Topical medication could not be effective here, even though we could apply an agent with a brush to the infiltrated area. I believe there is but one thing to take place in such a case and that is necrosis of tissue. I am not alluding to inflammatory infiltration. My experience has been discouraging in some cases of pulmonary tubercular infiltration, where the pneumatic treatment has been instituted before softening has commenced. There has been invariably a certain amount of subjective improvement, but no discernable improvement in the physical signs, until the stage of softening has been reached, when those who have maintained their confidence and energy have been amply repaid by the assistance that the process confers at such a time. In the management of such conditions, basing my diagnosis of tuberculosis entirely upon the presence or absence of the bacillus, I am careful not to tax the endurance or confidence of my patients by a too frequent treatment, until the stage of softening is reached. Then I *push* it.

Experiments with germicides should not be limited to the spray or vapor of those best known, but should be extended to gases and other dry agents. There have been some good results, lately, in the treatment of asthma from the use of the forced inspiratory act alone, running the rarefaction up to two inches, the patient exhaling into the cabinet, using a spray of potass. iodide, (one drachm to one ounce of water.)

In advanced phthisis, alternate differentiation is used, or in other cases, where the positive act has been maintained for some time, we usually end with a few expirations of the negative, i. e. compressing the air about the patient, but this is never done in cases where there is predisposition to hemorrhage.

TYPHOID FEVER.

BY J. C. ADAMS, M. D.

The etiology, pathology and treatment of typhoid fever are so firmly established that case-reporting is justified only when there is something to present that is novel or unique.

M. McC., male, aet. 14, was taken sick February 13th, 1884; visited him on the afternoon of the 16th; cephalalgia, erythematus, sore throat, slight tympanites, T. 100°, P. 140. Within a few days the mucous membrane of the stomach became involved, causing nausea and vomiting; and a little later diarrhea from involvement of intestinal mucosa. The next complication, occurring in the latter part of the second week, was a catarrh of the larger bronchi. The accumulation of phlegm was so great that it was necessary to urge the patient to "clear his throat."

Slowly, yet continuously, passing down the respiratory mucosa the smaller bronchi were invaded. The dyspnea was distressing. Early in the fourth week it became evident that the base of right lung was solidified. About 3 A. M. of the 29th day of illness I was hurried to his bedside by the statement that "something dreadful had happened." Entering his room I found the stench intolerable. The family at first supposed that a cat had been the transgressor. Searching the room in every part I soon discovered that the fœtor was limited to a part of the room opposite the patient's bed. It was only when I put my face near his that I discovered that his breath was the offender. Up to this time there had been no expectoration of a sucpicious character. Within twenty minutes he was taken with a convulsive cough and began to expectorate large quantities of extremely fœtid lung detritus. During the whole of the day we were obliged to throw the rags in which he spat into a saturated solution of fer. sulph. The incessant cough with associated dyspnœa was so distressing that I was obliged to partially interrupt it several times by opiates.

The next day the diarrhea, which had persisted from its inception, became sanious, fœtid, profuse and frequent —evidently septicæmic. The tympanites also became more pronounced. The typhoid fever proper was complicated during the first week by an intercurrent intermittent of the tertiary type. During the cold stage, pulse 140 and extremities cool. Hot stage—T. 100°.5, ending in a profuse sweat. When I first saw patient he was in the hot stage of such a paroxysm.

On the third day of my attendance there was a second paroxysm, when I detected its nature. Thereafter there was a weekly tendency to its recurrence, which was anticipated. During the whole course of an illness of eight weeks the temperature did not rise above 102°.5. The pulse was persistently frequent. It was neccssary to give

stimulants largely during the whole duration of the disease. The patient was systematically fed on pancreatized milk and milk soup, etc. Opiates were given only by the rectum. General medication on the expectant principle.

Not until two weeks after patient had been dismissed—end of tenth week—could it be said that diarrhea had ceased. The house occupied by patient was heated by a furnace. The latter was too small for the space to be warmed. The temperature was usually too low, consequently the air in the dormitory was seldom completely changed. The chambers opened on an L-shaped hall on second floor. Patient's chamber was at the end of the long arm of the L where it connected with the short arm. The latter ended in a flight of stairs leading down to first floor. Servants were in the habit of leaving contents of chamber pots in the shorter passage, nearly opposite the open door of the 10 or 12 by 8 room occupied by patient.

The only direct means of ventilating this room was a little trap door in the sash about 6x10 in. I believe this was probably the cause of patient's illness, because he had slight attacks of the same nature, one or two years before and the other one year after this attack; because he had occupied the same bedroom during the whole time; because no other member of the family, servants included, was attacked.

Summary: The noteworthy features of this case I conceive to be, the probable etiology; the intercurrent intermittent; the universal catarrh of digestive and respiratory mucosa; pulmonary gangrene; sanious septicæmic diarrhea; persistent frequent pulse and low temperature; and, barring modesty, the recovery of patient.

THE AMMONIA TREATMENT OF TYPHOID FEVER.

BY J. C. ROSSER, M. D.

In the whole history of medical science there is nothing more remarkable than the rapidity of the growth of biological knowledge within the last decade, and the extent of the modifications which have thereby been effected in some of the fundamental conceptions of the physician.

The supposition is, that the members of this association are familiar with the biological and pathological conditions upon which the ammonia treatment of typhoid fever is based. The attention of the profession was first directed to this subject by Dr. S. K. Jackson, in a paper read before the Virginia State Medical Society in 1883; and also in a paper read in section on practical medicine before the American Medical Association in 1884; and in which this subject was treated with that comprehensiveness of knowledge and clear critical judgment which has hitherto characterized his writings, and justify us in regarding his statements as representative expressions of the most extensive knowledge of our time.

Previous to the reading of these papers, I had been studying and experimenting in the same direction; and thus the views entertained by Dr. Jackson were to me of peculiar interest; in fact, I felt aided and encouraged in being led in the proper direction, and into territory that, after careful survey, will discover principles by which the general management of this disease may become more satisfactory. So far as I know, there are only two hypotheses entertained in connection with the subject before us, or which well can be entertained respecting the cause of typhoid fever, and the pathological conditions

upon which the ammonia treatment is based; and we will, if you please, now proceed to consider the *evidence* in our possession bearing upon these views, and by what light of criticism that evidence should be interpreted.

I. If we regard a "Parasitic Organism" to be the acknowledged etiological factor in the production of this disease, we must associate with this organism the phenomena of life,—that is to say, "Nutrition and Generation;" and we should also correlate between the life process of this organism and that functional trouble called pathological, which results from certain decompositions provoked in the human system by this organism.

According to a law that pervades the whole parasitic world, as far as I know, these low forms of life can only assimilate certain ingredients, and this fact has suggested names to the various ferments.

Now, the question would naturally arise, what ingredient in the human system does the typhoid parasite attack? We contend that it does consume a certain ingredient, which it decomposes into its ultimate constituents, which are thrown from the system in the form of an excretion. Should it attack the carbon compounds, we would expect to obtain carbonic acid gas as the excretory product. If it was the sulphur compounds, we should get sulphuretted hydrogen, and so on, throughout the whole life process of the Microzoon; as we endeavored to illustrate at a meeting of this association in 1883. When speaking in general of fermentations, I called attention to the alcoholic ferment which is produced by a cellular plant, a parasite of the grape, and showed that this parasite decomposed the sugar of the grape into carbonic acid gas, which it set free, and an alcohol which remained in solution; and although alcohol was rich in carbon, the grape parasite, on account of its physiological development, could not touch it, from the fact that the parasite

which destroyed the sugar of the grape, *lived without air*, and no ferment can destroy alcohol without the aid of oxygen.

Dr. Jackson has informed us that the typhoid parasite, to which we have referred, is a "*nitrogenous feeder*," and evolves the ammoniacal exhalations so abundantly emitted by the patient thus affected,—from the lungs, the skin, and the kidneys,—and which are undoubtedly due to the decomposition of the nitrogen of the body. In fact it was "the demonstrated nitrogenous waste of the system, the diminution of fibrine, the deficiency of urea, and all the nitrogenous excretions," which first attracted Dr. Jackson's attention as furnishing indications of treatment. He informs us "that if it were not the case that there was a deficiency of the nitrogenous elements of the blood, it might be supposed that these excreta were retained in the system, as in the case of desquamative nephritis, "but their absence is evidently due to the fact that there are none to be thrown off." We have no signs of uræmic poisoning; even the coma of enteric fever has never been attributed to that cause.

We should understand that it is consistent with the phraseology employed by Dr. Jackson, that in this disease there is really no nitrogenous waste, but rather an enormous nitrogenous consumption; for, in all fevers, we expect "nitrogenous waste," and the production of urea corresponds to the elevation of temperature; and in pneumonia especially, even though the diet should be absolutely non-nitrogenous, patients eliminate more urea than in health; and it is this that we would regard as nitrogenous waste. Vogel tells us that the "production of urea in typhoid fever corresponds to the elevation of temperature."

Another distinctive cause that might explain, to some extent, that nitrogenous waste to which we have referred, and this consists in the fact that in typhoid fever all of

the glands and glandular follicles, whose function is to secrete the digestive fluids, are in such a state of engorgement as to render them incapable of digesting or assimilating nitrogenous food.

II. The second hypothesis is, "that no organism can live in its own excreta." What will first strike you, is that this is an hypothesis which, whether true or false, is capable of verification by evidence; and that evidence is of so plain and so simple a character that it is impossible in any way to escape from the conclusions which it forces upon us. Butyric acid is fatal to the organism which produces it. Carbonic acid gas will destroy any life that produces it. "If alcohol be the result of the life process, what better agent have we for arresting that process than alcohol itself, and how generally is it used for that purpose."

We have thus far endeavored to show that there is one kind of evidence which neither helps the "ammonia treatment nor is inconsistent with it; and we have also endeavored to show you that there is a second kind of evidence which indicates a strong probability in favor of this treatment, but does not prove it; and now we shall show that there is a third kind of evidence, based on human testimony, which, being as complete as any evidence which we can hope to obtain upon such a subject, and being wholly in favor of this remedy, may be fairly called demonstrative evidence of its value in the treatment of typhoid fever.

Dr. Jackson says: "My experience with this fever (typhoid), when treated by the plan here pointed out, enables me to expect that if a case be recognized as one of enteric fever within three days of its inception, that it may break at the end of the first septenary. If it be not recognized as such until the fourth or fifth, it cannot yield before, but may at the end of the second septenary (14th

day.) If the treatment has not been commenced before the beginning of the second septenary the fever cannot break before the end of the third septenary (21st day), and that it will yield on that day, if not before, is almost an absolute certainty." My own experience during the past six years, with the ammonia treatment, corresponds very closely with that of Dr. Jackson; and we claim for this plan of treatment a reduction in mortality of five per cent. below all others hitherto adopted. Assuredly, in the face of such contradictory authority as has been handed down to us regarding the treatment of this disease and the various means which at different times have been resorted to, it would appear as an impertinence upon my part to volunteer an opinion on such a subject. For my part, I have no prejudice one way or the other. If there is evidence in favor of Dr. Jackson's theory, I have no sort of theoretical difficulties in the way of accepting it; but there must be evidence, as we, as physicians, have a way of looking upon belief which is not based upon evidence not only as *illogical*, but as *immoral*.

I have not space in the limits of this paper to enter into the details of the ammonia treatment, and would respectfully refer you to Dr. Jackson's articles on this point; I would, however, like to say a few words with reference to the use of the hydrochlorate of ammonia—to point out its dangers as well as its blessings. The coma of typhoid fever has been regarded by the pathologist as the result of non-nourishment of the brain, rendered possible by "thickening of the envelopes of the blood corpuscles," and thus, the action of this salt, suggested (as Dr. Jackson has informed us) its employment, in that condition,—"as a solvent of the thickened envelopes of the blood corpuscles."

My own experience in this connection, is, that this salt will relieve the coma promptly, but it also aggravates the tendency to intestinal, and especially hemorrhage

from the female genitals; and this effect may also be the expression of the same cause, that is, the power exercised by the hydrochlorate of ammonia over the thickened envelopes of the blood corpuscles. We do not, however, expect any of the usual complications peculiar to this disease if the patient has been brought under the influence of ammonia during its first stage, not even coma itself; and as this nitrogenous salt is endowed with such different therapeutical powers—the most sedative, and the most stimulant, we may find one adapted to any and every stage of the disease, and every probable "condition of the patient during its existence or progress."

The system of feeding our patients, in this disease, consists in nothing but milk. Animal broths are interdicted, until convalescence is fairly established. Farinaceous or amylaceous foods are also inadmissible on account of the absence of the diastasic fluids, and for this reason they undergo fermentation in the stomach, producing gaseous distension, which seriously complicates the condition of the patient, especially if this gaseous distension has arisen from other causes.

The hospital reports of 1885 show that eighty cases of typhoid fever were treated in the Northern Pacific Sanitarium by Dr. Hempstead, who used the ammonia treatment; and out of these eighty cases only one death occurred, and that was attributted to hemorrhage from the bowels. I might remark that Dr. Hempstead enjoyed rare opportunities for testing this treatment, having collected his patients from the extensive country traversed by the Northern Pacific Railway.

Now, gentlemen, in the discussing of this paper I ask no forbearance, not even the generosity of criticism, but simply the earnest support of all who prize the truth.

THE TREATMENT OF PHTHISIS PULMONALIS BY INTRAPULMONARY INJECTIONS.

REPORT OF THREE CASES BY P. H. MILLARD, M.D.

CASE I.

Charles Michaelson, age 31 years; occupation, farm laborer; nativity, Germany; family history, good; admitted to city hospital, Oct. 26, 1885. Patient is five feet ten inches tall and weighs 120 pounds; considerably emaciated.

Physical examination revealed the following condition: Inspection showed limited expansion over apex of left lung. Percussion, dullness over apex of both. Auscultation revealed amphoric respiration of left lung with extensive friction murmur. Subcrepitant and dry rales over apex of right lung; history of slight hemorrhages. Intestines are in a healthy condition.

Dec. 6th, I made an intrapulmonary injection of the compound tincture of iodine, one part to four of water. The point selected was the second intercostal space of left lung, a little to the left of a line drawn perpendicular to the nipple. Amount of fluid used, twenty drops. Instrument used, F. G. Otto & Son's aspirating syringe, using the smallest size canulated needle. Notwithstanding the free use of stimulants the patient became cyanotic and exhibited great shock. He rallied in a half hour, and was able to walk to his cot.

The hospital chart shows the following condition during the first five days subsequent to the injection: Dec. 7th, pulse 115 to 125; 8th, 115 to 125; 9th, 120 to 121; 10th 125 to 130; 11th, 115 to 120.

Temperature, Dec. 7th, 101 to 102 deg.; 8th, 102 to 103 deg.; 9th, 103 to 103½ deg.; 10th, 102 to 102½

deg.; 11th, 101 deg. Patient had all the physical signs of a circumscribed pneumonia.

Dec. 15th.—Injection repeated in right lung at same point anatomically as previously in the left. This injection was apparantly made in solidified tissue. There was not much shock following this injection.

The following is the hospital chart for the subsequent five days: Dec. 16th, pulse 120; 17th, 120 to 125; 18th 115 to 125; 19th, 115 to 120; 20th, 125.

Temperature: Dec. 16th, 101 to 102 deg.; 17th, 101½ to 102 deg.; 18th, 102½ deg.; 19th, 102 to 103 deg.; 20th, 101 deg.

There was a greater constitutional disturbance following this injection than the first. The signs of a fresh pneumonia not so pronounced. The patient refused to submit to further injections. He was shortly able to be about the wards, with his lungs in apparently the same condition.

About Jan. 1st the patient developed the usual intestinal lesions, and gradually failed and died May 5th.

Post mortem 36 hours after death: Body extremely emaciated. Left pleura adherent throughout, right non-adherent. Left lung tubercular, containing large cavity well filled with pus. Right lung tubercular, containing small cavity, apparently at point of former injection. This cavity would contain about six drachms of fluid. Pericardium contained three ounces of fluid, with heart hypertrophied. Liver enlarged, weighing seven pounds. Kidney and spleen normal. Intestines studded with tubercular ulcerations.

CASE 2.

William Castle, aged 24; nativity, English; family history, poor; father and one uncle having died of phthisis. Has suffered from occasional aphonia and a hacking cough

for two years. Aphonia complete during the last four months. Is much emaciated. Physical examination revealed the probable existence of cavities in the apex of both lungs. Made an intrapulmonary injection of iodine compound, one part to four of water, in second intercostal space of left chest. Syringe used, same as in case one. But little shock attended the injection. Twenty-three hours thereafter patient suffered a very severe hæmoptysis of an arterial appearance. The hemorrhage was alarming and the patient went into a condition of collapse for several hours. Repeated hemorrhages of a lesser degree recurred upon several occasions.

The hospital chart shows the following pulse and temperature: Dec. 14th, pulse 110 to 115; Dec. 15th, 115 to 120; Dec. 16th, 105 to 110; Dec. 17th, 120 to 125; Dec. 18th, 130 to 135; Dec. 19th, 140 to 145; Dec. 20th, 120. Temperature: Dec. 14th, 102 deg.; 15th, 102½ to 103 deg.; 16th, 101 to 102 deg.; 17th, 103 to 103½ deg.; 18th, 104 deg.; 19th, 102 deg.; 20th, 100 to 100½ deg.

This patient gradually sank, and died January 7th, 1886. I think a fatal termination was hastened by the injection. Was unable to secure a *post mortem*.

CASE 3.

John Hanson, aged 30; nativity, Norway; occupation, day laborer; family history good. Admitted to hospital January 16th. Patient fairly nourished, but having a high evening temperature, accompanied by night sweats. Left upper lung in a pneumonic condition, the right apparently normal. Had been ill six months, and was apparently suffering from pneumonic phthisis of the sub-acute variety. I made an intra-pulmonary injection of twenty drops of carbolized iodine (Lugol's), one part to four, in left intercostal space. Injection made with a common hypodermic syringe and attended with little shock. Patient had a chill

twenty hours after injection and temperature reached 104, and varied from 101 to 103 for a period of five days. This patient's chill and rise of temperature was undoubtedly due to lung changes produced by the injection. There were, however, no well marked signs of a fresh pneumonia or local pleuritis. Patient failed quite rapidly, and died April 30th.

Post mortem seventy-two hours after death. Body much emaciated. Intestines revealed well-marked tubercular ulceration. Spleen enlarged. Kidneys enlarged and amyloid, the two weighing 23¾ ounces. Capsules slightly adherent. Liver apparently normal. Pleura firmly adherent upon both sides. Left lung contained a large pus cavity and the substance thereof tubercular. Right lung tubercular and solidified.

I have reported these cases because I believe the treatment wholly negative in two cases and in the other death was undoubtedly hastened. Had the results been otherwise I should have awaited a larger series of cases before making known the results of treatment. In original investigations I believe failure should be reported with the same degree of frankness as success. This, however, is quite rarely the case.

The literature of this treatment is quite recent. To Dr. William Pepper, of Philadelphia, is due the credit of first directing the attention of the profession to this method of treatment. In an article in the American Journal of the Medical Sciences in 1874 his conclusions were not very favorable to the operation. Dr. Pepper's interesting paper was well nigh forgotten when Dr. Beverly Robinson in a lecture, delivered before the students of Bellevue Hospital Medical College in 1885, advocates this method of treatment, and claims that in conjunction with forced alimentation he has had a marked degree of success. Since Dr. Robinson's claims were published others have resorted

to this method of treatment with some degree of encouragement, or as a *dernier ressort.*

Dr. S. Smith has made forty-two injections in five patients. The etherial solution of iodoform in solutions of one grain to five minims of water was used. No harm followed any of the injections. In one case of chronic tubercular pleurisy there was marked improvement; in two others, slight. The fluid was injected into cavities and not the solidified tissue as recommended by Robinson.

At a meeting of the Clinical Society of the Post Graduate School of New York, Dr. M. Putnam Jacobi reported one case treated by injection of iodine, Dr. Wendell Phillips two, and A. H. Smith one. In all cases diluted solutions of iodine were used, and no bad symptoms followed. In two of the above cases it was thought the injections exercised a modifying influence over the progress of the tubercular deposits.

Dr. Gangrenheim, of Paris, has recently described his experience with parenchymatous injections of bichloride of mercury in phthisis. The strength of the solution was 1 to 500 to 2000. About 15 drops were used at one injection. The doctor claims to have used this method in 33 cases, and that 21 were improved thereby. Cough and hæmoptysis occasionally followed the injections. A long needle was used, and the injections were confined to the first and second intercostal spaces.

In the Medical Record of May 22d, 1886, Dr. Blake White, of Charity Hospital, New York, reports the result of the treatment of eleven cases by this method. The solution used was carbolized iodine. He claims more than satisfactory results, and closes his article by stating that "the plan of treatment enables the physician no longer to stand with folded arms awaiting for his patient the inevitable end, but puts in his hands the means of prolonging and sometimes saving life."

I regret that I cannot share the enthusiasm of the last writer. I, however, purpose pursuing this method of treatment until it is definitely established that it is futile.

With the discovery of the tubercle bacilli of Koch the profession has renewed its energies in trying to find a cure for this most fatal disease. If the bacilli *per se* are the cause of phthisis, then local appliances to the diseased parts by injections or inhalations would be very scientific, otherwise we cannot look for any relief to the phthisical patient by the use of this unsurgical and blind method of treatment. If the tubercle bacilli are the product of the blood dyscrasia, we are not justified in this mode of procedure, but must rather look for relief or amelioration by remedies acting through the medium of the circulatory system.

In the treatment of phthisis and the many other diseases owing their origin to, and being accompanied by, the much abused microbe, the practitioner is compelled to halt and wait the further investigations of the bacteriologist. If they can assert with a reasonable degree of certainty that the minute germ accompaning so many diseases is the direct cause thereof, our treatment will be generally confined to the germicides and innoculation. Upon the contrary, if the germ is the product or scavenger of disease, we are left in the darkness of the last generation, and must continue to grope our way in the vain hope of stumbling upon some remedy possessing a specific effect in the various infectious and contagious diseases.

SURGERY.

FRANKLIN STAPLES, M. D., CHAIRMAN.

The meeting of this department was called in the "Club Room" at the West Hotel at 2:30 P. M., Thursday—Franklin Staples, M. D., Chairman. T. F. Quimby was elected Secretary. The chairman presented a general report on progress of surgery, which included the following topics: In the first division, Abdominal Surgery, Intubation of the Larynx, and the uses of the Salts of Cocaine. The second division consisted of notes of cases communicated to the chairman by members of the society during the past year.

The chairman now suggested that papers be read in order and that members take notes to be referred to in discussions after all papers had been read, in order to save time and to insure the complete disposal of business. The recommendation was adopted, and the following papers which had been previously submitted to the department, were read by their authors: 1st. "Report of a year's work in fractures," by W. W. & W. J. Mayo, M. D., Rochester; 2nd, "A case of vesical calculus, with a rubber gum nucleous; successful operation for removal by lithotrity," by Thos. F. Quimby, M. D., Minneapolis; 3rd, Reports of two cases of A. E. Senkler, M. D., St. Paul,—case 1, "A nephrectomy;" case 2, "Convulsions and partial paralysis from fracture of the skull, relieved by operation 14 years after the accident causing the injury;" 4th, "Local tuberculosis; its management from the standpoint of its pathology," by C. H. Hunter, M. D.,

Minneapolis; 5th, "Four cases of tuberculosis of small joints," by J. E. Stewart, M. D., Minneapolis; 6th, "Laparotomy performed for the removal of a tumor, which proved to be a large abscess of the liver," by Louis Bauer, M. D., St. Louis; 7th, "The surgical treatment of empyema, and a method of applying plaster of paris splints," by J. A. Dubois, M. D., Sauk Centre; 8th, "A case of perityphlitic abscess," by J. H. Stewart, M. D., Minneapolis; 9th, "Pneumonia following operations and injuries, with reports of three cases," by P. H. Millard, M. D., Stillwater; 10th, "A peculiarly complicated case; vaginitis, infection of husband, peritonitis, exploratory laparotomy, pyonephrosis, nephrectomy, death, autopsy," by James H. Dunn, M. D., Minneapolis.

After reading the above papers the department of surgery adjourned to give place to the department of ophthalmology and otology.

THOMAS F. QUIMBY,
Secretary.

Report of the Department of Surgery.

FRANKLIN STAPLES, M. D., CHAIRMAN, WINONA.

I.

GENERAL REPORT ON RECENT PROGRESS IN SURGERY.

1st.—Abdominal Surgery.

J. Marion Sims, in 1882, published in the British Medical Journal an appeal for operative interference in penetrating gun-shot wounds of the abdomen. For all wounds

penetrating the cavity of the abdomen, and for all other injuries and diseases of the abdominal viscera, the treatment, so far as surgery was concerned, had been only expectant. In the winter of 1883–84 Dr. Charles T. Parkes, of Chicago, instituted a series of experiments on animals, causing abdominal gun-shot wounds with revolver and rifle, then performing laparotomy upon the animals, cleansing the peritoneal cavity and the abdominal viscera, and performing plastic operations upon the intestines and other viscera when the gun-shot had caused a lesion.

Dr. Parkes published the result of these experiments, and his views as to the possibilities of abdominal surgery, in his address in surgery to the American Medical Association in May, 1884. Within the last two years many others have experimented, operated and written much on the subject. It is said that there has been an epidemic of laparatomy. The pendulum in all great advances in practical scientific work is, at first, liable to swing to the extreme other side. It is nevertheless true that surgeons of to-day are witnessing a great and permanent advancement in this department of surgery.

In this connection I desire to note an important element which has contributed to the success of this onward movement, which, in a great measure, has rendered successful work possible to an extent that could not have been at a much earlier date in the history of surgery. I refer to the present advancement and practice of antiseptic surgery. With our present means and methods of work, with the care now exercised concerning cleanliness, exposure, temperature, etc., and with the extra care now practiced in surgical manipulation, which has been naturally acquired along with the study and practice of antiseptic methods, the better class of surgeons are able to do in the department which we are now considering, what could not have been done at an earlier time. As in political history and

the advancement of civilization, many events and movements, though of different origin and character, depend and act one upon the other in the accomplishment of the results that follow them, so it is in the world of science.

Lawson Tait, of Birmingham, Eng., has given a series of one thousand cases of abdominal section, in a great variety of operations, including the removal of different kinds of ovarian and parovarian cysts, hysterectomy, cholecystotomy, nephrectomy, enterotomy, acute and chronic peritonitis opened and drained, removal of tumors of omentum and mesentery, suprapubic lithotomy, and many others. In the one thousand cases he had ninety-three deaths. Now, it is difficult at present to believe that this eminent surgeon could have obtained such results before he had acquired the ability to do the kind of painstaking and careful work that has come to the surgical world along with the practice of Listerism. Mr. Tait may attribute his success in his late work to "increased personal experience" rather than to the carrying out of the details of Listerism, and in doing this he may, at least in part, overlook what really constituted the successful application of his increased personal experience. The so-called details of Listerism are not what we so much need to know, as to know how to do the best work in accordance with the principles and established facts lying beneath what has been called Listerism.

Dr. N. Senn, of Milwaukee, late chairman of the surgical section of the American Medical Association, at the recent meeting at St. Louis, read his address in surgery on the subject of "The Present Status of Abdominal Surgery." This has been published in the Journal of the association, and should be read by every one interested in the progress of surgery. The address was a thoughtful and conservative paper, and yet one fully up with the present state of science and practical work. It aimed to show the

limit of abdominal operations, and made a distinction between feasibility and justifiability of operative measures in many cases. The following are some of the subjects of the discourse: Penetrating Wounds of the Abdomen, Laparocolotomy, Subcutaneous Laceration of Intestines, Intestinal Obstructions, Rupture of Diaphragm, The Treatment of Peritonitis by Abdominal Section and Drainage, Gastrotomy, Splenotomy, Surgery of the Gall Bladder, Injuries and Surgical Affections of the Liver, Surgery of the Pancreas, Surgery of the Kidney, Operations for the Removal of various Tumors, etc.

Dr. Senn is a patient and industrious student, a painstaking investigator, a believer and practical worker in antiseptic methods. He prefers the bichloride to carbolic acid, and for uniting divided ends of intestine, the Czerny-Lembert suture. In closing his address Dr. S. has the following: "The results already obtained in the surgical treatment of injuries and lesions of the abdominal organs are indeed gratifying, and bear abundant evidence of the good and faithful work which has been accomplished. The greatest achievements of abdominal surgery, however, belong to the future. This new territory, only so recently acquired by the surgeon, has been only partially explored. New operations will be devised and old ones improved. Diagnosis will be made more certain by a careful study of symptoms and a more thorough knowledge of physiology and pathology of abdominal organs. Experimental research will clear up many obscure points in the causation of disease, which will lead to new and improved methods of treatment. With all these prospects before us, let us not remain idle. Abdominal surgery is of American birth. Let us cherish our own offspring. The world holds us responsible for its healthy growth and development. McDowell, Gross, Sims, the distinguished fathers of abdominal surgery, have left us in charge of an important and sacred trust."

2d.—Intubation of the Larynx in Croup and Laryngeal Diphtheria.

Intubation of the larynx is an operation at one time attempted in France but for a long time entirely abondoned, but which has been recently revived in this country by Dr. Joseph O'Dwyer of New York. It consists of the insertion of a tube of peculiar shape between the vocal cords thus permitting the passage of air into the trachea. The tube has a flanged top to prevent its passage down the trachea. In the New York Medical Journal of August 8th, 1885, will be found a most interesting article on the subject by Dr. O'Dwyer, who gives a history of his investigations, extending over a period of several years, and of the various changes made in the instruments, and also illustrations of the same.

Dr. F. E. Waxham of Chicago read an inaugural thesis on Intubation before the Gynæcological Society of Chicago, which was published in the Chicago Medical Journal and Examiner, March, 1886.

Dr. Waxham reported seventeen cases of pseudo-membraneous laryngitis in which he had practiced intubation with eight recoveries. He gives eleven important advantages of intubation over tracheotomy, and observes that the only objection to the operation is the difficulty of performing it, and sometimes in removing the tubes, but that this objection can be overcome by practice upon the cadaver. That with sufficient practice the operation may be quickly, easily and safely performed. This should receive the attention of the profession, and no one should fail to be prepared and qualified to do the operation.

3d.—Uses of the Salts of Cocaine.

The preparations of coca have come prominently before the medical profession within the last two years, because of the anæsthetic properties of the salts derived

from its alkaloid. I shall not here attempt a history of the drug, its preparation and uses. Much has been published in all our medical journals, and its use as a local anæsthetic is perhaps the most important discovery in therapeutics of late years. The hydrochlorate of cocaine is the salt generally used. A solution in water of two to four per cent. or a preparation called the oleate, prepared by several chemists, are mostly used. In surgical ophthalmology, otology, laryngology, gynæcology and genito-urinary surgery, in dentistry and various operations in minor surgery, it is now in use everywhere. It can be freely used on mucous membrane, but needs to be studied and carefully used hypodermically. Members are referred to the published literature of the subject.

II.

ITEMS IN SURGICAL PRACTICE FURNISHED BY MEMBERS OF THE SOCIETY.

DR. L. H. MUNGER, FAIR HAVEN.

1st, Case of Injury, Exposure, Tight Bandaging, Gangrene, Amputation.—2d, Case of Severe Cerebral Congestion, Recovery.

CASE 1. A laborer, aged 22, injured in woods by a falling tree, wounded over left eye, on inside of left thigh, and with punctured wound on outer side of left arm, and bruise of left forearm. Injured man was first taken on a sled thirty miles for first dressing, then by rail to St. Cloud, then by team twenty miles to his home. He was then seen by Dr. M. The left forearm was swollen below

the bandage, and the hand and wrist were black. In spite of all treatment gangrene resulted and amputation was performed in the forearm. Was loss of hand due to shock or local injury, exposure after injury, or to improper bandaging in first dressing? Probably largely to the latter.

CASE 2. A boy, aged 10, fell twelve feet on side hill on frozen ground, striking left side of head. Dr. M. found patient in condition of shock, hemorrhage from both nostrils and left ear, also serous fluid escaping from left ear, pupils dilated, pulse slow and irregular, face pale. Gave brandy hypodermically at first, afterward gave potas. brom., ergot and belladonna. After six days began to improve, and in ten days was out of doors. Recovery apparently complete.

DR. A. F. RITCHIE, DULUTH.

A new Treatment for Fracture of Femur.

CASE. Last December a tall muscular laborer about 30 years old received a fracture of the lower third of the thigh from direct violence. About eighteen hours after the injury it was treated in the following manner, which seems to present some points of novelty. A tripod was extemporized, and with pulleys the patient was raised by a sling under the arms into the upright posture. Most of his weight was rested on the foot of the sound limb, supported by a block a few inches high. The injured limb hanging free, a plaster bandage was applied from the toes up its whole length and around the hips. About a fortnight later the man was allowed to go about on crutches. Situated inaccessibly several miles in the country, the after treatment did not receive the care that such a case requires. Consequently an examination about five months

later showed a full two inches of shortening and a considerable amount of callus.

This result, however, does not reflect on the original method of treatment, for which the following advantages are claimed: First, the comfort of the patient. This man had had a fracture previously, and, peevishly timid, he begged for an anæsthetic. But on this occasion he suffered more from the pressure of the sling under his arms than from all the manipulations of the limb. Secondly, the comfort and independence of the surgeon. The tripod is not necessary. A patient at all willing to help himself can be got into position by the aid of a single able-bodied assistant who can then easily support him, leaving the surgeon free to apply with equal ease and precision any form of dressing he may select. Thirdly, there is the mechanical advantage of making the weight of the limb in every way a help instead of a hindrance. Attention may also be here directed to the rapid emaciation which takes place in subjects of active habits during enforced rest and which renders constant supervision especially necessary in fractures of the thigh.

DR. D. W. HAND, ST. PAUL.

On Surgical Treatment of Hemorrhoids and Radical Cure of Hydrocele.

I. In operating for hemorrhoids I have found the best result from the ligature, next from strong nitric acid, and I have not been satisfied with the injection of carbolic acid. This last is uncertain, and in my experience is nearly as painful as the more radical methods. In all cases after applying the ligature or nitric acid I thoroughly stretch the sphincter ani muscle. Where this is done there will be less pain, and no difficulty about passing

urine. No operation, except that for fissure of the anus, gives so certain and prompt relief as this.

II. For the radical cure of hydrocele, I have, for some years, abandoned the injections of tincture of iodine, and instead used *red precipitate*. This, after evacuation of the fluid, is introduced through the canula on a moistened probe, about two grains with one-fourth of a grain of sulphate of morphia being the amount usually required. It causes excessive pain for an hour or two, and is pretty sure to set up the desired inflammation. It has the advantage over tincture of iodine of being more cleanly, of avoiding shock, and of being more certain to cure.

DR. F. H. MILLIGAN, WABASHA.

Dr. M. writes: Put me down as one who believes that in cocaine we have a most valuable local anæsthetic.

DR. DANIEL LEASURE, ST. PAUL.

On Treatment of Acute Cystitis.

CASE. Early last summer I had a case that worried me as well as the patient, and, after I had tried many of the plans generally used, including washing out the bladder with various medicated solutions as well as some plain water washes, I reasoned that if I could obtain the same results from the use of a combination of bismuth and hydrastis that I obtained from it in diseases of the throat, vagina and urethra, of similar pathology, I might relieve my patient positively and myself relatively to our mutual satisfaction. Acting on this, I injected into the bladder equal parts of warm water and Chapman &

Green's methoglycerole of bismuth and hydrastis twice daily, and requested the patient to retain it as long as possible and then void it. At first not more than an ounce could be borne for a few minutes, but in a few days he could retain it half an hour, and then all night, and I gradually increased the quantity so as to quietly distend the organ until it would retain two or three ounces, by which time all irritation ceased and the patient remained well. I have resorted to the same method in four nearly similar cases with the same results, and I am disposed to think that it cannot be all mere coincidence.

We all know the process of *metallizing* mucous surfaces with bismuth, and we know the somewhat peculiar effects on the same surfaces of hydrastis, and it would seem as though there were physiological reasons for the use of the two combined in cystitis as well as in other similar pathological conditions of mucous surfaces.

DR. W. C. EUSTIS, FARMINGTON.

Hernia, Strangulation, Sloughing, Artificial Anus, Recovery.

Dr. E. reports a case of a female, aged 70 years, with hernia of the left side of over a year's standing, which became strangulated in January last; suppurated, broke in about a month, and discharged a small amount of pus and large quantities of fœcal matter. Fœcal matter was discharged freely for upwards of two months, when an evacuation per rectum occurred weekly till the middle of April, when free evacuations took place regularly per rectum, and the artificial anus rapidly closed, and cure was complete by the 14th of May. The patient was of quiet disposition. Her axillary temperature was never above

100 deg. The treatment was simply supporting. The case is remarkable as showing the possibility of nature being able to care for so grave a condition as strangulated hernia.

DR. OTIS AYER, LE SUEUR.

1st.—An operation for varicocele; 2nd,—A case of exposed bone covered by the process of granulation.

I. Dr. A. writes: "In the past year I have operated for varicocele in a manner I have not before adopted. Take two common darning needles, if no acupuncture needles are at hand, heat them to remove temper. With number one transfix the scrotum, passing behind veins and in front of artery and vas deferens. Pass number two, armed with a double ligature, in and out by the side of number one, but passing in front of veins, cast ligature over each end of number one, tighten and tie; cut off ends of needle number one, protect cut ends by sealing wax, keep patient in bed ten days and then discharge him cured."

II. In amputation of the humerus, just below the surgical neck, one flap sloughed, exposing bone on one aspect for an inch and a half or two inches. I did not re-amputate, but hoped the exposed bone would be covered by granulations. It was so covered, and I report the case for that simple fact.

III.

SURGICAL PAPERS AND REPORTS OF CASES.

A REPORT OF A YEAR'S WORK IN FRACTURES.

BY DRS. W. W. AND W. J. MAYO, ROCHESTER.

The importance of the treatment of these injuries, from a selfish point of view, can hardly be overestimated; for how often is a reputable physician harassed and his pocket, possibly, plucked of hard earned dollars by a malpractice suit growing out of an unfortunate fracture. Even if the suit against him be unsuccessful, he receives no compensation for the damage to his reputation, the mental suffering and money costs. In the large majority of malpractice suits the case is one in which the doctor had no hand in producing the injury, but where he had striven to repair damage done. The suit is seldom brought until an attempt is made at collection of bill, and physicians of good reputation are always the victims. It is not to punish him for a crime, else worthless quacks would suffer, but simply a mulcting process. What must be done to prevent the increasing frequency of such suits? We must take great care in the treatment of fractures, and in doubtful cases call counsel always. We should avoid criticisms upon the results of others; and, lastly, either let us charge enough for treating fractures and like injuries to enable us to stand a suit occasionally, or organize into protective associations, as was done in Chicago lately.

In our treatment of fractures we have no splint which possesses the occult power of iodoform in wound surgery, to convert bad work into good; nor can we often claim

that "the germs have raised the deuce with our result in spite of rigid antisepsis." In general we use moulded splints, and, where practicable, apply a plaster dressing when the swelling abates. In fracture of the clavicle we find a compress of adhesive plaster at the seat of injury, held firmly by long straps of the same, is a valuable adjunct to the methods of retention in ordinary use. In fracture of the tibia an efficient, comfortable splint can be readily improvised by placing the leg upon a feather pillow laid lengthwise; pull the sides of the pillow upon the leg, and without place light board splints, retaining the whole by six or eight bands tied in front. In Colles' fracture of the radius we believe deformity is more frequently due to incomplete reduction than to any displacement of the fragments after complete reduction.

Fractures of the Head.

A. Postier, age 8; April 13th, 1885.—Compound fracture of right parietal bone, 1½ inches in diameter and just above the ear, caused by a sweeping blow with a bolt. About a tablespoonful of brain substance escaped. The splinters were removed; a compress and bandage applied; recovery. This case was reported in the last "Transactions."

E. Partridge, age 24; Oct. 30th, 1885.—Fracture of the left inferior maxillary bone between the bicuspids, by indirect force. The fracture was easily reduced and retained by a four-tailed chin bandage. This man received other injuries, and was attended with P. N. Kelly, M.D., of Rochester.

Chas. Dahl, age 31; Dec. 21st, 1885.—Compound fracture of the right inferior maxilla between the second and third molars, by direct force. Great difficulty was experienced in over-coming the action of the masseter muscle upon the posterior fragment; it was finally ad-

justed and retained by an interdental wedge of cork. This man was seen with Dr. W. A. Ransom of Dodge Center, and died on the tenth day of meningitis, probably from basal fracture of skull.

Christina Christianson, age 22; Dec. 27, 1885.—Received a fracture of each inferior maxilla by a fall upon the point of chin. The left, fractured at the center of the body, was not displaced. The right, fractured between the last biscuspid and first molar, was compound into the mouth, the posterior fragment being drawn in by the pterygoids. It was replaced and retained by wiring the teeth.

F. Smith, age 30; Jan. 7th, 1886.—Received a compound fracture of the right inferior maxillary bone by a mule kick. A canine and incisor with a portion of the alveolar process were removed, and the fracture retained by a moulded pasteboard splint.

Fractures of the Trunk.

J. W. Livingston, age 60; Aug. 23rd, 1885.—By a fall upon the back of head and neck from a stack, fractured the spines of the fourth and fifth cervical vertebrae. His head was carefully supported in a slightly flexed position by a large pad extending from the shoulders to the occiput. He had a convulsion on the sixth day, caused by a slipping of the compress and sudden extension of the head, producing pressure on the spinal cord; it was at once checked by flexing the head. Recovery with immobility at the seat of fracture.

John Klee, age 59; Nov. 20th, 1885.—Fracture of the ninth and tenth ribs at the angle upon the left side, caused by a fall. A wide flannel bandage around the thorax and pinned firmly gave relief until union had taken place.

Fractures of the Upper Extremity.

J. Cavanaugh, age 41; Aug. 28th, 1885.—Fracture of the surgical neck of the humerus by indirect force, easily reduced and retained with a long, right-angled splint of molded pasteboard externally and a short inside splint. Recovery good.

A. Hyerdahl, age 12; Aug. 3d, 1885.—Fracture of the internal condyle of the humerus, with dislocation of the fore-arm backward, caused by direct force. Under anæsthesia the dislocation was reduced, the arm being put up in a molded pasteboard splint at less than a right angle, the fracture being supported by compresses. Passive motion was commenced after the third week. Recovery with almost complete motion at the elbow joint.

Katie Hurber, age 19; Aug. 26th, 1885.—Received a "T" fracture of the humerus by great force, causing extensive injury to the elbow joint. The swelling of the joint was most intense and persistent. The arm was put upon an angular molded splint; and passive motion begun during the fourth week, though the swelling was yet marked. As this diminished, use of the arm was encouraged. Recovery, with two-thirds normal range of motion of the joint and some deformity.

Agnes Hyatt, age 8; Aug. 5th, 1885.—Green-stick fracture of left ulna and radius at the middle third. The bones were bent back and shingle splints applied. Recovery speedy and complete.

Ed. Partridge, age 24; Oct. 30th, 1885.—Fracture of right radius in the lower third by direct force. Fracture easily reduced and retained by pasteboard splints, with good result.

Caroline Stevenson, age 40; Dec. 17th, 1885.—Colles' fracture of left radius, giving the characteristic appearance of increased length of ulna with prominence of the external styloid process and shortening and incurvation

of the radius. The fracture was reduced with some difficulty, and retained upon a moulded copper splint of the Levis pattern. Result, slight deformity, otherwise good.

C. Joslyn, age 47; Aug. 8th, 1885.—Compound fracture of fourth metacarpal bone by the needle of a self-binder. A palmar splint with compresses applied. Result, some deformity at seat of fracture.

F. Moore, age 24; 1885.—Fracture of the fourth and fifth metacarpal bones by direct force. Reduced by extension and manipulation; compresses were applied at seat of fracture, and the hand bandaged over a roller bandage clutched in the palm. Result, fourth distal extremity lower than the other knuckles, fifth in good position.

In our experience the so-called "knocking down" of the knuckle is frequent after this fracture. In compound fractures of the digits we have had most excellent success by the use of splints, and sutures with little tension where necessary, and keeping the bandages and dressing constantly soaked in a one per cent. solution of carbolic acid until granulation is active. The relief to pain is immediate and the recovery prompt, in cases where amputation of some portion seems almost beyond question. We heartily recommend this plan in the frequent cases of smashed fingers.

Fractures of the Lower Extremity.

W. Waldron, age 3; July 10th, 1885.—Transverse fracture of the middle of right femur by a fall. Fracture easily reduced, and retained by a long splint. A plaster cast was applied in the third week. Result, union without shortening.

Ed. Partridge, age 24; Oct. 30, 1885.—Compound angular fracture of the middle third of left femur, by indirect force. Fracture reduced by extension, which was con-

tinued for four weeks in the usual manner, by a weight and pulley; this was followed by a plaster cast. Recovery, with three-fourths inch shortening.

F. McCabe, age 17; Dec. 23, 1885.—Gunshot wound of left thigh at the junction of the upper and middle thirds, chiseling a rough notch in the inner side of the femur. The fracture was incomplete, requiring no splints. Free drainage with tubes was established, with recovery.

April 12, 1886.—A small pet deer fractured the thigh bone of its left hind leg, close to the body and within an inch of the joint. The fracture was angular, and the ends of the bone drawn completely by through muscular action. The seat of fracture was laid open freely, the fragments drilled with a shoemaker's brad, and united with three stout silver-wire sutures. The wound was drained and dressed, and the animal swung up in a coffee-sack swing, allowing the legs to project through holes in the sack. At this writing ten days have elapsed, and the animal appears to do well.

H. Moulton, age 59; June 14, 1885.—Fracture of the left tibia, just beneath the tuberosity, with dislocation of the superior fragment outward from the joint. The fracture was reduced with great difficulty. The leg was placed upon a feather pillow, the edges of which were drawn well up and retained by light internal and external splints, with eight bands tied in front. A plaster cast was applied in two weeks, with good result.

H. Snyder, age 27; Nov. 12, 1885.—Compound fracture of right tibia, lower third, by being thrown from a horse. Fracture was reduced by extension, and retained in a fracture box. This case was seen with Dr. Plummer, of Hamilton, and made a good recovery.

A. Pose, age 10; March 1, 1886.—Fractured the lower third of left tibia by a fall. Reduced by extension, and retained upon a posterior, molded, copper splint, with good result.

A CASE OF VESICAL CALCULUS WITH A RUBBER GUM NUCLEUS—OPERATION FOR REMOVAL BY LITHOTRITY.

BY THOS. F. QUIMBY, M. D., MINNEAPOLIS.

On or about the 20th of February last, was called in the night to see Fred. Horton, 16 years of age, who was suffering intense pain in the region of the bladder, with frequent desire to micturate and extreme discomfort following each act.

Questions revealed the following facts, viz.: Patient had had similar attacks during the past two and a half years, gradually increasing in severity. Had been seen by various physicians and temporarily relieved. Gradually emaciated and became weak. Had had severe pains shooting into thighs and abdomen and a slight evacuation from bowels upon every attempt to relieve the bladder. Urinated day and night upon an average every fifteen minutes. There had been at times a *sudden stopping of the stream during micturition.*

I diagnosed foreign substance in the blader, (presumably stone.) I made the patient temporarily comfortable, and informed his father of my ideas regarding the cause of the boy's illness. He expressed doubts as to the correctness of the diagnosis, rather attributing it to the double effect of a kick in the testicles which the boy had previously received, and to his practice of lifting heavy weights with his teeth. I directed the boy to pass his water laying on the back, and took a specimen away to examine microscopically. Found it laden with phosphates, considerable bladder epiphelium, some red blood corpuscles, mucus and pus.

Several days afterward the boy revealed a rather interesting and unique circumstance, viz.: Some two and a

half years ago, or, to be exact, three years ago this present month (June, 1886), while in a water closet, he introduced into the penis a piece of rubber chewing gum, (tolu gum, of which children in the neighboorhood were fond,) keeping it moving slowly in and out. Upon being startled by somebody coming to the door, he pulled the rubber out, breaking it off in the urethra. The piece disappeared. The boy went home and that night was not able to sleep from pain and uneasiness in the bladder, not revealing the cause, however, to his parents. From that time he grew gradually worse.

On the 25th of February I etherized the patient, introduced the sound, and the sharp characteristic click immediately settled the business and convinced the father, who at once requested that I proceed as soon as practicable to remove it. After explaining the different methods, he, as well as the boy, decided in favor of lithotrity or rather litholopaxy.

Securing the valuable assistance of Dr. C. H. Hunter, who kindly sent to Boston for the proper instruments, we appointed the day for operation. Upon the 11th of March, assisted by Drs. Hunter and Freeman, and in presence of Drs. Kimball and Ames, the patient was etherized and the lithotrite introduced without difficulty, after first enlarging the meatus. I could easily touch the stone, which being evidently of nearly the same specific gravity as the urine, readily changed its position and refused to be caught in the jaws of the instrument. After trying in vain for a quarter of an hour I passed the instrument to Dr. Hunter, who, after about the same length of time resigned, without having caught it. Again taking the lithotrite with the firm determination to crush something, after ten minutes more work and by opening the jaws to a distance of at least 2¾ inches, I succeed in getting the stone fairly between them, and crushed it through its longest diameter.

Having had the patient under ether an hour and a half, we decided to wash out the debris and leave the remainder for a second operation, which was accordingly done, securing a quantity of phosphatic stone which weighed, when dry, 102 grains. Put the patient in bed, ordered five grains quinine every four hours, and light diet. Cold affusions to penis.

Patient recovered from the operation with no untoward symptoms. On second day after the operation the temperature was 100 and pulse 115. He declared that the pain which he formerly experienced from the bladder closing down upon the stone after micturition had entirely disappeared, likewise the pain in the back which had tortured him for a long time previously. He continued to pass small fragments of stone and sand for several days.

A week later, the patient being in fair condition, we proceeded to remove the balance of the stone. Patient was again etherized, and the fragments seized and crushed until nothing more could be found. The lithotrite was then removed and the washing tube inserted and the fragments washed out. A sharp click and perceptible impulse warned us that there was yet a fragment too large to be washed through the tube. The crusher was accordingly introduced, and several pieces crushed and removed. It was particularly noticed that after the bladder had been washed out, directly the crushing instrument was introduced a piece was sure to be seized.

During the second operation the lithotrite was removed and reintroduced at least five times, and the washing tube as many. Inspection of the fragments revealed some large fragments having on them facets or grooves where they had lain in immediate contact with the gum; and in addition to the stone, which weighed when dried nearly 300 grains, we found pieces of rubber gum, which, when united, made a piece nearly three inches in length, looking in size, form, color and consistency as it did nearly

three years ago, at its time of introduction into the bladder. The total amount of stone and rubber crushed and removed by the apparatus, together with that which passed with every act of micturition, cannot fall much short of 430 grains.

As before, the boy was put upon quinine, beef tea and milk. The bladder was washed out every hour, and at times every half hour, with a strong solution of boracic acid, and cold compresses made about the penis. The reaction was as prompt and favorable as before. Appetite began to return at the disappearance of the febrile condition, which lasted but a few days. Bowels became regular; micturition reduced to twice during night by aid of belladonna and opium suppositories, and at the end of ten days patient was able to go out doors. Since that time has increased rapidly in weight and strength, and is apparently rid of all fragments which might act as nuclei hereafter.

REPORTS IN SURGICAL PRACTICE.

BY A. E. SENKLER, M. D., ST. PAUL.

Case 1—A Nephrectomy. Case 2—Convulsions and Partial Paralysis from fracture of the skull, relieved by operation 14 years after the accident causing the injury.

CASE 1.

A. D., age 47 years, the mother of three children, the youngest having been born eight years ago, had suffered ever since her last confinement from a tumor in the left flank, which had given her much pain, at times increasing

in size and sensitiveness very considerably and then partially subsiding, but upon the whole growing larger year by year.

For many years the urine had been turbid when passed and had deposited a large amount of grey sediment, the supernatant liquid having been often smoky in color.

The attacks of swelling and pain in the tumor referred to above had always been followed by an increase in the quantity of deposit in the urine.

Her general health had steadily failed until she had become quite emaciated and of a pale, sallow complexion with a care-worn expression.

February 20th, 1886, she was brought to St. Paul and placed in St. Luke's Hospital. Upon examination the tumor was found to be firm, without demonstrable fluctuation, and nearly immovable; extending from the margin of the ribs to a point on a level with the crest of the ilium, and of a width about half its length.

A consultation was held on the case and a diagnosis of surgical kidney (pyonephrosis) agreed upon. The right kidney was somewhat tender to pressure, but there was no other evidence of disease in it.

She passed a fair amount of urine, which reacted to the tests for albumen to the degree one would expect with the quantity of pus it contained. The microscope revealed innumerable pus cells and many red blood corpuscles, but no tube casts.

At her urgent request it was decided to attempt extirpation of the diseased kidney by a lumbar incision. On March 2d, she having been etherized and laid upon her right side with a rolled pillow placed under the right flank, an incision was commenced at the edge of the erector spinæ muscles about two inches below the margin of the last rib, and carried obliquely downwards and forwards to within an inch or so of the crest of the ilium. Upon coming down to the quadratus lumborum muscle,

its outer fibres were pressed back towards the spine, and the diseased kidney was partly brought into view. Fluctuation could then be distinctly percieved. The dissection was then proceeded with, more room being obtained by an incision at right angle to the first one. The diseased organ was found to be very firmly adherent all around, and its separation was accomplished almost entirely by the fingers, but with very great difficulty, especially where it was united to the colon and mess-colon. Great care was necessary to avoid tearing the peritoneum.

Notwithstanding the large size of the wound the kidney could not be delivered until three of the abscesses had been tapped and evacuated. The pedicle was then ligated in three parts with strong silk, and cut off.

The wound was washed out with carbolized water; a large drainage tube put in; then drawn together with sutures and dressed with borated cotton. Venous hemorrhage during the operation was tolerably free, and towards its close the pulse became very weak and other evidence of collapse appeared.

She rallied fairly well, however, upon coming completely out from the ether. At 1 P. M. her pulse was 120 and temperature 97 3-5°. At 5 P. M. the pulse was 112 and temperature 98°. She complained greatly of pain, which suppositories of morphia did not relieve, and was very restless. The pulse and temperature steadily rose until at 10 P. M. the pulse was 140 and the temperature 100°. At 2 A. M. (fourteen hours after the operation was completed) the pulse became uncountable and the temperature 104°. A few minutes later she died.

CASE 2.

J. B., age 22 years, employed in assisting to move baggage in a hotel, was sent into St. Luke's Hospital, St. Paul, March 25, 1886, suffering from spasmodic at-

tacks of a peculiar character, which had become so frequent and so severe as to incapacitate him for his occupation.

The contractions, beginning as clonic and gradually becoming tonic, commenced in the right hand. The thumb being drawn across the palm and the fingers closed over it; the muscles of the forearm, and then those of the arm contracted. Quickly following the spasm of the hand, the muscles of the right side of the face would begin to twitch violently until the mouth was strongly drawn, the eye-ball rolled up, and the face contorted into a horrible grimace. These attacks would last about one minute. The patient maintained positively that he never lost consciousness in any of these seizures.

The history that he gave was that at the age of eight years, (14 years ago,) he received a blow on the head from a falling brick, which fractured his skull and produced a contused wound of the scalp; the wound healing quickly. Some months afterwards an abscess formed under the scar, was opened, discharged some pieces of bone, then healed again. Soon after this, according to his recollection, "the fits" began, and have continued at intervals ever since.

There was once a period of nearly three years when he was free from the attacks. During the first day he was in St. Luke's he had nine (9) of the convulsive attacks.

A consultation of the staff of the hospital was held on this case. On examination an irregular cicatrix was found at the anterior superior angle of the left parietal bone, with two depressions, well defined as to their edges, evidently perforations of the skull, one about $\frac{3}{8}$x$\frac{5}{8}$ inch, the other about $\frac{3}{8}$x$\frac{3}{4}$ inch in size, and separated by a narrow bridge of bone. The depressions pulsated perceptibly and were tender on pressure.

His right hand and arm were palpably deficient in muscular power, and apparently the right leg also. There

was a hesitating imperfection in his speech and a lisping defect in his articulation.

It was decided to turn back the scalp from the injured bone and to make a search for an irritant to the cerebral membrane. April 25th he was placed under ether, and the side of his head having been shaved, a horse-shoe shaped flap was marked out and raised, care being taken to split the scalp from the dura, where they were united over the openings in the bone. This was successfully done without opening the arachnoid cavity. A few drops of clear fluid oozed out of the meshes of the cicatricial tissue covering the holes in the skull.

It was deemed proper to remove the little bridge of bone between the two holes in the skull, the better to explore the margins for depressed points. This was done by means of Hey's saw and the bone pliers. A probe was passed in and swept around, but no spiculæ or depressions could be made out. The attachment of the two cicatrices, which seemed very tense, were then cut through, with the point of the scapel, all around both holes, and the margins explored with the probe, but no projecting body could be found. The flap was then replaced and secured by two silver stitches.

During the night following the operation he, according to his own statement, had two (2) slight convulsive attacks. Almost 48 hours after the operation he was seen to have a convulsion of the muscles formerly convulsed in his attacks, and that was the last appearance of the sort. He had no fever nor pain. The wound healed by "first intention." He was discharged on the 4th of April (10th day) and went to work the next day. A gradual improvement has taken place both in the strengh of his limbs and in his speech.

LOCAL TUBERCULOSIS — ITS MANAGEMENT FROM THE STANDPOINT OF ITS PATHOLOGY.

BY C. H. HUNTER, M. D., MINNEAPOLIS.

When I selected this subject as a topic for study during the year I expected to make examination of any tuberculous or scrofulous material that might fall into my hands, more especially with reference to the presence or absence of the bacillus tuberculosis. With this idea in view I early solicited material from those members whom I thought might be interested in the subject, but time has not permitted satisfactory study of even my own specimens. The work has, however, been done elsewhere better than I could have hoped to have done it, and on these results the idea of my paper is grounded.

Tuberculosis is an infectious disease, characterized anatomically, by form of nodules. It may be general or local; that is to say, the growth of tubercles may be general and simultaneous throughout the body or confined to some organ or part of an organ. The process of development of a tubercle is the same essentially whether there be one or an eruption of many, or in whatever locality.

The first change observed is an infiltration of the tissues of a given locality with round cells—leucocytes. The central cells become obscured, finely granular; the center of the mass finally becomes a homogeneous finely granular, dried material—cheesy stuff. Around this now foreign body a demarking line of inflammation forms. The cheesy material is moistened again. Meanwhile the little nodules of round cells are constantly pushing out into new territory. Finally all breaks down into an abscess, with cheesy, curdy, watery pus. Its wall

still contains the little tubercles conquering new territory. These were the essentials of tubercles until Koch discovered the essential characteristic in a living organism, the bacillus, without which there is no tubercle.

The evolution of a tubercle is then this: The lodgment in the tissues; an embolus in a capillary or lymphatic; the perivascular space in the sinus of a gland; of an organism alive like the cells it has fallen among. Necrosis of the central cells attacked follows the presence of the germ; demarking inflammation next; desiccation of the pus; cheesy degeneration, and constant extension at the periphery. Or a bacillus escapes from the locality, is carried to a distant part by the circulation, there to reproduce the process. Two essential elements of malignancy are these: peripheral growth and metastasis.

Two terminations are possible; cessation of peripheral growth, which happens, I suppose, only after the death *in loco* of the bacillus tuberculosis; desiccation and absorption of the heteroplastic material, or its extension from the body. This is spontaneous cure. The second mode of termination is continuance of the process; invasion of important organs, or malnutrition from constant drain, and pain and death.

The part where these bacilli tuberculosis most frequently locate is the apices of the lungs, in which inaccessible position they are generally, not invariably, fatal. Other frequent seats are the larynx and more accessible parts, with which the latter part of this paper will be chiefly concerned. There are the cervical glands; the testicle; synovial membrane of joints; the heads of long bones, near the epiphysis; flat bones and most often the small bones.

Whatever may be its locality, its behavior is the same; granulation tissue, necrosis, cheesy degeneration, invasion of adjacent tissue, infection of lymphatics leading from the site and the nearest glands. Its tendency is the same

as in the lungs,—to the destruction of the part involved, with tendency to systemic infection.

Two cases illustrate this; one related to me, the other my own case. The first was that of a young man, who, in leaping on to a bicycle, struck his testicle. An abscess slowly formed in the scrotum. The cord soon after became hard, nodular and tender. His water then troubled him. He began to cough. The result was rapidly fatal.

The second case was in a young man also. He noticed without any known cause, a tender swelling in the epididymis of the left testicle. Pus slowly developed. I opened the abscess, scooped out all granulated tissue and packed the cavity with carbolic gauze. *It healed kindly, all but a small point.* This was two years ago. All the text-books that I examined, with one or two exceptions, advised this manner of treatment. Billroth, however, says that such testicles do just as well when he does not as when he does operate by inasin and curettes. Some months after the cord became large, swollen, nodular up to and into the ring. I advised castration, but it was not adopted. The young man has a large testicle, and nodular, hard cord. His health is good.

A third case that may be mentioned in this connection, shows still less tendency to general infection. I saw the case in C— and found the left half of the scrotum red, œdematous and discharging pus from two or three ugly looking fistulæ. Numerous scars about the right scrotum proved by the history to be points at which a year previously the right testicle had slowly discharged itself. The discharge lasted some six months. The abscess in the left testicle was freely opened and all the extensive granular tissue scooped out with a scoop, and the cavity packed. The cavity filled up quickly.

None of these were examined for bacilli, but there can be no doubt of their nature. The cervical glands from their connection with the pharynx are often infected with

micrococci and products of inflammation so that we find them swollen from parenchymatous infiltration of their sinuses and follicles and hypertrophied from the more permanent changes due to involvement of their interstitial tissue. Pus may come from the same process.

But there can be no doubt, I think, that by far the greater number of these cervical enlargements are due to tuberculosis. Some put the percentage as high as 75 per cent. Koch found the bacillus in twenty-one out of twenty-six cases. Other observers report finding the bacillus in tumor albus of the knee and in similar swellings affecting the tarsus, carpus and other small bones.

A remarkable case is spoken of in a recent number of the Annals of Surgery in which, following a blow on the cranium, local tuberculosis developed as evidenced by the bacillus. Twenty-seven operations were performed on different parts of the body before the patient was freed from this infection.

The bacilli have been found also in the cheesy masses in the epididymis and testis. To discover the bacillus in the urine is now the recognized method of differentiating a tubercular nephritis and a pyelitis.

The central idea that I would deduce from these observations on the pathology of local tuberculosis and apply in treatment, is this: that in dealing with tubercle we are not dealing with the products of a simple inflammation nor with innocuous cheesy material, but rather, owing to the presence of an organism as tenacious of life as the cells themselves, with matter that is essentially malignant —do not misunderstand me—not so malignant as cancer, but still malignant.

The patient who has refused to allow me to remove his useless testicle sits on a volcano; the one whose testicle I removed is, I believe, safe or much safer.

Whenever an accessible part is attacked with tuberculosis, the diagnosis of which is rendered certain by the

presence of the bacillus, we should manage it as we would carcinoma of the part. It should be removed, and the cavity or parts left rendered a poor habitat for the bacillus by the proper antiseptics. How best to secure this end each can study for himself. Castration for tubercular testis, extirpation of glands before periadenitis arises, resection of joints and of small bones.

I will not detail cases, but judging from the experience I have thus far had, extirpation of small bones is safer than gouging. Thorough drainage must be secured at all hazards. Packing with iodoform and iodoformed gauze and Lister are found satisfactory.

SURGERY OF BONY TUBERCULOSIS.

BY J. CLARK STEWART, M. D.

When Koch in 1882 announced the "tubercle bacillus," and proved it to be a perfectly reliable diagnostic sign of tuberculosis, a powerful stimulus was given to the study of local tuberculoses, and especially of those obscure bone lesions the tubercular origin of which had long been suspected.

Even before this the progress of antiseptic surgery, allowing safely extensive interference with bony parts, had largely increased the power of the surgeon to control these cases.

Not many years ago the victim of tuberculosis could obtain no surgical relief, as the best authorities considered the local lesions to act as a derivative, and so prevent the outbreak of pulmonary symptoms. Hence they advised against operation, and patients carried about sinuses

leading to diseased bone for years, till the thorough infection of the system led to phthisis.

Recent researches into the pathology of chronic bone diseases have demonstrated that many lesions which in the past were not considered of tuberculous origin, and which were frequently submitted to operation, were really tuberculous, and that the good success of these operations, and the non-appearance later of pulmonary symptoms, were due to the destruction of the original focus of disease by the operation.

Granting that tuberculosis depends on a specific toxic agent, whether bacillary or otherwise, the only rational course seems to be that when we find this toxic agent localized, it should be removed thoroughly. On this principle the modern practice of surgery as applied against local tuberculosis is based. Each focus of disease is considered a semi-malignant new growth and treated accordingly.

It has not been found that operations on phthisical patients, when done antiseptically, fail from lack of reparative power, or that the pulmonary lesion is in any way aggravated. Omitting any account of the pathology, I will pass at once to the treatment, giving a few cases in illustration: 1st. As to constitutional treatment, all are agreed on good hygiene, food, tonics, cod liver oil, etc.

Locally.—When tubercular osteopathies are seen and diagnosed early, there are measures aiming at absorption of the products of inflammation, mainly rest, local immobilization, elastic compression, and counter irritation by blisters or actual cautery. These measures are probably only efficient in cases of "encysted tubercle" which it is known may undergo even spontaneous cure.

Later, when the disease passes on to the formation of of abscess, what shall be done? The text books on surgery are full of warnings against interfering with the large abscesses by congestion, the so called "cold abscesses,"

but here too modern antisepsis has revolutionized surgical practice, and now all accessible abscesses may be opened safely.

An abscess may be simply opened and drained, or its cavity may be washed out, scraped with sharp scoop, or deprived of its lining by decortication and its bleeding walls made to unite largely by first intention. A resulting fistula may be treated by stimulating injections or scraping, but as it generally depends on and leads to bony lesion, the latter must be removed.

The focus of disease may be destroyed in various ways.

The actual cautery, applied to diseased portions of bone, has been used by Ollier of Lyons with decided success. He uses large cautery irons and applies them vigorously in all osteopathies of the shaft or juxta-epiphyseal portions of diaphysis, but condemns their use as insufficient in epiphyseal or articular lesions. I have had no experience in this method of treatment.

Scraping and gouging.—These are the methods to which I especially call your attention as suitable to the treatment of all tubercular osteopathies, except those affecting large joints where exsection is necessary.

Here are two very important points: First.—Be sure and remove all diseased tissue. Second.—Whenever possible make the resulting wound funnel shaped, so that it can be packed and granulate from the bottom. This should be done even at the sacrifice of considerable healthy tissue, as it effectually prevents the formation of a sinus, which is the regular result in my experience where a drainage tube is relied on, and I know of nothing more annoying and obstinate to treatment than one of these sinuses leading down to a bone cavity filled with unhealthy granulations.

Before passing to the cases to which I wish to call your attention, it may be well to give the exact detail of antisepsis, etc., used in all. All patients were accustomed

to hospital life and food for a few days before operation; whole body was thoroughly cleased with soap and water before coming to operating room, after which parts near seat of operation were again scrubbed with soap and water, and then washed with ether and five per cent. carbolic in succession, and any existing sinuses irrigated with 1-1000 solution of bichloride of mercury. Surgeons, assistants and nurses then washed and disinfected in five per cent. carbolic; instruments in five per cent. carbolic, sponges same, and all sutures, drains, etc., were rendered aseptic. During operation parts were irrigated with bichloride solutions. Dressings were iodoform damp gauze in contact with all open wounds and lines of incision, covered by large amounts of bichloride gauze extending at least twelve inches beyond wound in all directions, retained by gauze, and, when the shape of parts permitted, starched bandages. The special instruments used were bone gouge and mallet, Simon's sharp spoons, periostiotome, and Esmarch's apparatus wherever possible.

Cases operated on by me at Mt. Sinai Hospital, N. Y.:

1. Boy, aged 11. Came in with a small sinus leading to bare bone on anterior surface of tibia, just below knee. History indefinite, but sinus was said to have discharged for several months a watery pus. Very little pain or constitutional disturbance. Father died of phthisis.

Under anæsthesia, an incision was made in course of sinus, and a small opening was found leading into tibia. After elevating periosteum, this sinus was enlarged with gouge and found to lead into a cavity about three-fourths inches in diameter, filled with fungoid granulations embracing a small soft sequestrum. These were removed and the cavity scraped thoroughly with spoon till its walls became hard and resistant; then with a gouge the healthy bone was removed till the bottom of the cavity became the apex of a funnel-shaped depression. The skin was

sutured to the periosteum to prevent too early closing of the wound, and the cavity was packed with iodoform gauze covered with bichloride gauze dressing. Posterior knee splint applied.

First dressing five days later. No temperature above 101 deg. on second day. Within ten days the whole bone cavity was covered with healthy granulations, and the case went steadily on to a good recovery. This was diagnosed as a juxta-epiphyseal osteitis of tubercular origin, but was not tested by examination for bacilli.

2. Boy, aged 7. Had diphtheria, chicken-pox and measles about two years before admission, followed in six months by swelling in left knee and right hand. Regular symptoms of arthritis in knee, which increased till three months ago, when an opening appeared below joint, which discharged pus. Family history negative. General condition very poor; knee greatly enlarged, with a large abscess in popliteal space. Abscesses were opened freely and drained; later the joint was opened and marked tubercular changes found. The tubercle bacillus was demonstrated in the granulations and pus from joint.

Under thorough drainage and tonic treatment the boy improved, so that in six weeks he was in condition for a radical operation. Exsection of the knee joint was attempted by Dr. Wyeth, but the disease was found to extend so far into both tibia and femur that an amputation was necessary.

All went well for one month, during which thigh stump had entirely healed, except a small granulating surface where flaps had separated a little; but about this time the old trouble in right wrist re-appeared, and also a painful swelling over left shoulder, which proved on incission to be a cheesy bursitis under deltoid muscle. Three months after the amputation it was found impossible to prevent the destruction of carpus, so I operated

through a long incision on ulnar side of hand, removing with scoop all the carpus, except the scaphoid and trapezium, and also the fourth and fifth metacarpal bones.

Cavity was irrigated with 1-500 bichloride solution and packed from the bottom with iodoform gauze. The highest temperature after operation was 101.2 deg. Within one and one-half months the wound had entirely healed, the bones being replaced by dense fibrous tissue, and there was little deformity, with perfect mobility at wrist joints.

In the meantime the bursa under supra spinatus muscle had been opened and scraped for cheesy inflammation and had healed, but there was still a sinus at the front of the joint. One month later the shoulder showing arthritis was opened and part of the head of the humerus removed by gouging. Three months later the boy was returned to his friends apparently well, except for the loss of one leg and a partial anchylosis of left shoulder joint.

No lung trouble could be detected at any time of the eleven months he was under observation.

3. Boy, aged 3. Tubercular ostsitis involving cuneiform bones and metatarsals. This was scraped out through a dorsal incision, removing the greater part of the external and middle cuneiform bones and the heads of the opposing metatarsals. Usual dressing. Discharged cured in one month.

4. This case is interesting because the local lesion was complicated by marked pulmonary disease.

Man, aged 32. Gave history of phthisis running back several years, with hemorrhages, night sweats, etc.; and also history of bone disease in tarsus for the past seven years. Suffered from intermittent pain and swelling, worse in rainy weather and worse at night. About two years ago these symptoms became continuous, till three months ago, when a small reddened, fluctuating swelling

appeared at inner side of foot. No marked change since that time. Sputum showed tubercle bacilli.

Incision was made over swelling and a mass of pulpy granulations found which led past the first metatarsal to a spina ventosa of the second. Diseased bone and tissues were scraped away, but owing to position of external wound it was impossible to pack cavity, so drainage tube was used and the result was a sinus, which later rendered necessary a more direct opening down on seat of disease and rescraping, after which the case progressed steadily to cure. During the period of granulation the patient had several severe hemorrhages from lungs and irregular high temperatures up to 103.5°, in spite of which the wound remained healthy, and steadily grew smaller. He was discharged two months after second operation, with a sound and useful foot and with general condition improved.

5. Boy, aged 7. History of "scrofula" dating from vaccination at two years. Good family history. Balance of large family are healthy.

Right carpus was seat of fusiform swelling with numerous sinuses, and function of fingers was almost lost. Over left great toe was an immense fungating ulcer through which probe passed to bone. On other foot and hand were several typical examples of spina ventosa.

This boy went out well with the loss of right hand, several toes and the resection of one phalangeal joint on remaining hand. The tubercle bacillus was looked for and found in this case, as the diagnosis of syphilis had been priviously made by good men, who called the spina ventosa dactylitis syphilitica.

This term spina ventosa has been loosely applied to a variety of lesions of the phalangus, but should be limited to that form of tuberculous osteitis occurring in the extremities of the smaller long bones, where a fusiform swelling of the bone itself is formed by subperiosteal proliferation, while at the same time there is progressive ab-

sorption from within leaving a spherical cavity filled with tuberculous products.

This lesion rarely penetrates the articular cartilage, but pierces the bone on either side or dorsum. The shape and the fact that the probe passes into a cavity may lead one to believe that the joint is the part affected.

These cases are not of especial interest, except as they show that local tuberculosis can be entirely eradicated by surgical operation, that operation wounds heal well in spite of pulmonary disease, and lastly, that the destruction of local lesions neither brings on pulmonary disease, nor aggravates that already existing.

LAPAROTOMY, PERFORMED FOR REMOVAL OF A TUMOR, WHICH PROVED TO BE A LARGE ABSCESS OF THE LIVER.—RECOVERY.

BY LOUIS BAUER, M. D., ST. LOUIS, MO.

The patient is a man 42 years of age, of good constitution, a book-binder by trade. I have been called upon to prescribe for him a number of times during the past seven years. The provocations consisted of an attack of pain of the severest character, in the *left* hypochondriac region. They re-occurred with more or less regularity, rarely a longer interval than three months or less than six weeks. These attacks lasted but a few days and were readily subdued. They began suddenly and usually terminated with a copious fecal discharge. Besides the intense pain, both subjectively and on pressure, there were symptoms of peritonitis and complete obstruction of the

bowels. Careful palpation revealed no tumefaction or any change in form or consistency of the anatomical parts of that locality. He had complete immunity from pain during the intervals, and was neither anæmic nor jaundiced. He was advised to keep his bowels in good condition by means of mild aperients and experienced no difficulty in doing so.

The last attack I did not observe at the time, but a few days subsequent, still suffering some from constipation of the bowels, having a fecal odor of the breath and an occasional emesis of foul material, he called at my office for a thorough examination of his case. I had him undressed at once, noticed at the lower border of the *right* hypochondriac region a swelling about the size and shape of a half orange, smooth, elastic, sensitive on motion, respiration and touch, and extending more than an inch below the false ribs. The patient was feverish, the temperature increased 2 degrees, pulse rapid and the respiration thoracic in character. Such conditions were not present on former examinations. Obviously there was mechanical interference with the transverse colon, for the ascending was found to be distended with gases and feces while the other portions appeared almost empty.

Among the pathological conditions probable, I was inclined to an echinococcus cyst. It appeared too large for a distended gall-bladder and it was not as movable as you find such a condition. Abcess of the liver was not thought of, as the patient had at no time complained of pain on the right side. This attack had lasted but a few days, scarcely long enough for so rapid development of an hepatic abscess. The patient was evidently threatened with ileus and in imminent danger. Laparotomy was therefore decided upon as imperative, to remove the mechanical obstruction of the intestine, whatever it might be.

The operation was performed early the next morning,

March 21st, Doctors Waldo Briggs, John W. Vaughan and A. M. Carpenter co-operating.

An incision was made seven inches long parallel with the border of the false ribs, opening abdominal cavity, exposing not only an inch and a half or right lobe of the liver, but the tumor to its full extent, immediately to the right and anterior to the gall-bladder. We found the gall-bladder free from concretions and almost empty of gall. The peritoneum as far as could be observed was free from any plastic deposits. The liver presented decided evidence of inflammatory changes. By means of the aspirator about a quart of creamy non-offensive pus was removed, also the error of our diagnosis discovered. Neither by digital examination nor by means of the sound could we reach the bottom of the abcess, it extending under the inferior surface of the liver. No biliary concretions were found with the pus.

In our judgment the best thing to be done was to open the abscess freely, thoroughly cleanse with an antiseptic fluid, suture the walls of the abscess to the external surface of the abdominal incision and place in a drainage tube; all of which was done.

The patient realized great relief when he came from the influence of the anæsthesia. The pain had completely disappeared and within a few hours afterwards the bowels moved freely. His rest was perfect, followed by a craving appetite: thus his general condition continued without any rise in the temperature, which soon declined and remained at the normal standard. The pulse was scarcely more than 90 at any time. The wound was dressed every day and the abscess cavity washed out. The discharge was quite copious in the beginning, but changed in color and consistency, becoming more turbid, dark and with coloring matter of the bile, especially biliverdine; occasionally concretions were expelled with the pus. The

concretions were partly soft and others in a cylindrical form.

On the sixth day there was a profuse fluid discharge from the bowels, which was evidently of the same character of the discharge of the abscess, which we ascribed to a communication between the abscess and the transverse colon. This discharge continued for a few days. The discharge from the wound was lessened after the discharge from the bowels began.

On the eighth day a substance far advanced in decomposition and of a very offensive odor came away by slight traction with the forceps. It was about two inches long and three-fourths of an inch broad, at the base being oblong in shape of a black, greenish color, and fibrous in character. It was in the form of a sac and the upper surfaces were agglutinated together, while the lower part of the sac contained some solid substances enclosed within, about the size of a chestnut. We opened the sac and a number of substances were found about the size of a pea pressed together. These substances, on examination by the aid of the microscope and chemical analysis, proved to be composed almost entirely of bilirubine and biliverdine.

From this time forward the amount of pus discharged daily became less and the wound became less in extent. By the close of the fifth week the wound had completely healed and the patient, from all indications, well. The liver had almost regained its normal size; there was no pain; appetite very good; digestion excellent; urine normal in quality and quantity.

The patient had rapidly convalesced. He was now passing most of his time in walking about the house and it was thought he could soon return to his work, when he was attacked suddenly with chill, followed by fever and free perspiration.

There was nothing to indicate local trouble, and as there were some surroundings which suggested malaria, quinia was prescribed, but another attack repeated itself. In two or three days there was pain in the right hypochondriac region a direct line with the axilla. This pain was produced on each inspiration and on pressure. Poultices were applied over the cicatrix, so that the pus suspected of being within might find an escape at the former opening. Mild aperients were given. Within three days the pain had ceased and there was no discharge from the former wound.

After the lapse of five days there was intense pain in the left hypochondriac and the epigastric regions. The small intestines and ascending colon were distended, and there was no passage from the bowels. Small doses of calomel (18 gr.) with rhubarb and carbonate of magnesia were administered, resulting in speedy relief.

The patient is now in a prosperous condition, sitting up or walking about most of the time. No pain; good appetite; sleeps well and complains of nothing but weakness.

Retrospect.— There can be no difference of opinion that the operation was the proper remedy in the premises. That the tumor was impelled by a collection of fluid had not been in the least doubtful. But for the symptoms of ileus simple aspiration might have sufficed. The light derived from the events following the operation has fully confirmed the wisdom of the procedure. By no other channel consistent with the preservation of life could the biliary concretions have been eliminated. We are now satisfied that the diagnosis of the preceding paroxysm to be that of renal colic was erroneous. Even if the ramifications of the solar plexus being pathologically disturbed, the locality would cut no figure in the case.

From the light received from the operation, we conclude:

First—That the former attacks were caused by the pas-

sage of small cylindrical gall-stones through the ductus communis chaledochus.

Second—These biliary concretions must have formed in the hepatic duct, judging from their form and size.

Third—The last attack and the subsequent formation of hepatic abscess was in our opinion initiated by inflammation and finally perforation of the hepatic duct.

SURGICAL TREATMENT OF EMPYEMA.

BY J. A. DUBOIS, M. D., SAUK CENTRE.

The term "empyema" has been rather indiscriminately used to include all effusions into the pleural cavity, whether of a serous, sanguineous, or purulent character. This probably was due to the difficulty of distinguishing between the physical signs of the various pleural effusions, they being so nearly identical. It is, however, of late, being used more strictly to designate a pyothorax occupying the pleural sac.

From the derivation of the word it is a misnomer when applied to any other effusion than pus, and it is to that sense we shall restrict it in this paper.

From the earliest times of which we have record in medical annals, we read of the successful treatment of empyema, when relegated to the domain of surgery.

Twenty-three hundred years ago, Hippocrates described the operation of paracentesis thoracis as performed by him for the relief and cure of empyema; and from his time down it enumerates among its advocates the names of nearly all of the most distinguished medical and surgical authors.

The early operators, however, appear to have practiced the operation with a degree of confidence and success hardly realized by the followers of a later date. For following the revival of surgery, from the blow given it by the Council of Tours, empyema appears to have ranked more and more as an incurable disease, and operative interference in behalf of the patient, although frequently made, was fast coming to be looked upon as justifiable only as a last resort; and, like all last resorts, possessing properties of relief rather than of cure.

It is true great names still stood as its advocates, for we read of Lænnec strongly commending it; but with the majority of surgeons it was looked upon with disfavor. As late as 1840 Colles spoke very derogatorily of it.

But the experience of Trousseau of Paris, Roe of England, and especially Bowditch of America, both with hydrothorax and pyothorax, inaugurated a new era in the history of empyema; which, with the application of Listerism, and the modification in treatment practiced by Estlander, which is known as Estlander's operation, and to which I shall soon refer, have raised a tide of professional interest in the subject which certainly predicts for it a glorious future.

In the brief time alloted me I can give but a cursory and hence imperfect view of the present means used for the cure of empyema. The methods now resorted to for the removal of pleural affusions are various, but they are really comprised under two heads, viz.: the *open* and *close* treatment.

The latter includes all attempts to evacuate the contents of the pleural cavity through the chest-wall, while at the same time every effort is made to prevent the vacuum thus produced being occupied by an ingress of air through the wound.

With this end in view the aspirator is used, or fine tro-

car; the small intercostal puncture being promptly closed upon the withdrawal of the instrument. For all serofibrinous pleuritic effusions, I think the last thirty years have demonstrated that this is the operation *prior jure*.

But in pure empyema the condition is different. What have we here? An immense abscess, which, by force of location interferes by mechanical pressure with the functions of vital organs, and by nature of its contents imposes a menace of sepsis upon the system.

To relieve the compressed organs, an incomplete evacuation such as the *close* treatment generally gives, might suffice. But the dangerous qualities of a pyothorax demand a complete removal of the offending material; for although it is possible for a residual serous effusion to be reabsorbed, the reabsorption of purulent effusions is now believed to be one of the myths of surgery.

The *open* treatment of empyema, by free incision or by puncture with large trocar, and subsequent free drainage, with the additional antiseptic irrigations practiced by many, looks to the complete evacuation of the pleural sac.

There is a considerable difference of opinion as to the point to be selected for entrance in the thorax. The old plan, however, of entering at the lowest possible point in the posterior region has been abandoned. The majority of surgeons choose the axillary line not lower than the seventh intercostal space on the left side, and the sixth on the right. Many good authorities, among whom may be counted Billroth, Wagner, Rose, prefer the fifth intercostal space in the axillary line. Marshall frequently operates through the anterior wall of the chest below the nipple, in the fifth intercostal space.

Fischer, of Strasburg, however, with the idea of rendering the washing out of the purulent liquid more easy, and preventing the retention of part of the antiseptic solution in the posterior cul-de-sac of the pleura, chooses

the eighth rib near the joint of the scapula. (See report Congress of Naturalists and German Physicians at Strasburg, 1884.)

In operating through the intercostal spaces surgeons are often troubled by an obstruction to the opening produced by the approximation of the ribs in the shrinkage of the side which follows empyema. To obviate this difficulty Rose, more than twenty years ago, proposed a resection of a portion of one rib. The same reason suggested the old operation of trephining a rib.

From first to last the operation of paracentesis or incision should be performed with strict antiseptic precautions. With Listerism progressing, the old horror of exposing serous membranes to the atmosphere is rapidly dying away. There is no reason why the justifiable audacity of modern abdominal surgery should not also attend thoracic surgery.

The most important modification of the treatment of empyema made for years, is that which was quite recently practiced by Estlander, and which bears his name. Estlander, following in the wake of Letievant, looked upon empyema as an immense abscess, bounded on one side by compressible lung tissue, and on the other, by a non-collapsible wall, due to its partial bony formation. To produce a collapse of the thoracic wall, so that the two layers of pleura should approximate, thereby obliterating the space between them, as well as to establish a better drainage than was previously possible, Estlander resected a considerable portion of several ribs.

Letievant of Lyons, first performed this operation in 1875, to control a dangerous hemorrage following an empyema. His success was complete.

In 1879 Estlander performed the operation for the first time in a case of purulent fistula, and followed it to the time of his death, with a remarkable series of cases which were published by his pupil, Salxamann.

The indications for this moblization of the thoracic wall were found by Estlander to be varied, and were carefully marked out by him. The younger school of French physicians are following his footsteps with enthusiam.

Whatever other use may be made of thoracoplasty in the future, I believe its success is assured in cases of chronic pleurisy with compression of the lung; in pulmonic excavations connecting with the pleural cavity; and in fistulous tracts.

The operation of rib resection is simple and easy of performance. The directions given in some of our recent systems of surgery,—I call attention particularly to the International Encyclopedia of Surgery, of Ashurst's,—if followed, would lead one to think differently. But rightly performed the operation is not difficult.

Excepting in the region of the pectoral muscles, where a semi-lunar flap is necessary, an incision should be made directly over and parallel to the rib, through the periosteum, which should be separated from the rib to its superior and inferior borders. An ordinary retractor, strong and broad, should then be taken and its curved end introduced at the inferior border between the periosteum and bone. With a little care the intercostal vessels and nerves can be pushed away, and the instrument brought up on the internal surface of the rib—still between the periosteum and bone—to the superior border. The operator should next, with a pair of Lister cutting forceps, cut through the rib upon the retractor. Then, by sliding the curved end of the retractor along the costal shaft, the rib can again be cut through, removing as long a portion as desirable, without at all injuring the adjacent pleura. Several ribs may be thus resected, the number depending upon the amount and limitation of the pleural effusion, and the opening into the pleural sac finally effected where the advantage is greatest for thorough drainage.

I here take the liberty to subjoin a very brief account

of a case occurring in my own practice within the last year.

Joe Schmidt, 25 years of age, by occupation a farmer. Oct. 1st, 1885, in endeavoring to extract from a gun a loaded shell exploded it, and was struck by it upon the left side over the fourth costo-chondral articulation. The shell glanced, producing a penetrating wound of the chest in the third intercostal space, through which several hours after, when first seen, oozed thin blood and air. The cellular tissue about the wound was infiltrated with air, but the emphysema never extended more than a few inches from the lesion.

In ten days symptoms of an inter-thoracic abscess began to appear, and three weeks from date of injury there was a large pulsating pyo-thorax, which was at that time discharged; first, through a bronchus, and directly afterwards through the shell wound. A purulent fistula resulted. December 17th, he was very much emaciated, with all the symptoms of septic fever. There was marked flattening of entire left side, and examination revealed a large pulmonic excavation in the superior lobe near the location of the original wound.

Agreeably to the advice of Dr. Ramsay, of St. Cloud, who saw the case with me, a resection of the ribs to close the cavity was determined upon.

As the patient was in abject poverty, living at a distance where it was difficult to get to him, and in the midst of unhealthy surroundings, he was immediately moved from his miserable quarters, and taken to the hospital at St. Cloud, where, a few days subsequently, he was operated upon by Dr. Ramsay and myself, assisted by Drs. Gibbs, Munger and McManus.

The patient being chloroformed, five ribs were resected, between and including the third and seventh. The longest piece taken away measuring 3¾ inches.

An incision was made in the second and in the seventh

intercostal spaces, through which large drainage tubes were inserted, as also through the fistulous opening, the seat of the original wound, giving us three sources of drainage. The operation was performed with antiseptic precautions, and the thorax was immediately wrapped with Lister dressings. These, as often as soiled, were removed and renewed.

The patient rallied nicely from the operation, and his future course was marked by an almost uninterrupted convalescence. The evening exacerbation of temperature that had been so steadily present, at once began to decline; his appetite improved; the cough, which had been constantly present, subsided.

There was a free discharge of pus for some time from the pleural cavity, but it gradually lessened and eventually ceased; the lung remaining permanently compressed. In thirteen weeks the man had fully recovered and returned to his home.

I close the paper with this short summary. In cases of pleural effusions, where there is doubt as to the nature of the effusions, ascertain the character by means of the hypodermic syringe. If it is serous, prevent pulmonary compression by aspiration. If it is purulent let the aim be to evacuate thoroughly and establish free drainage, reserving for unclosed cavities the mobilization of the thoracic wall.

PERITYPHLITIC ABSCESS.

BY J. H. STUART, M. D., MINNEAPOLIS.

Mr. F., aged about 40; healthy, active man; was taken with a chill and violent pains all through the abdomen on the morning of February 24th. A physician was called, and he obtained relief. On the following day he was pretty comfortable. A slight soreness or pain remained in the right side of the abdomen, and thought he felt a hardness in the right iliac region. This soreness remained and was sufficient to keep him in doors, and a part of the time in bed, though otherwise he felt pretty well.

He had a fair appetite, no fever, with bowels moving either voluntarily or with the aid of mild laxatives. I first saw the patient March 2d, the 7th day of the attack. He was in bed lying on his back, looking well, no fever, tongue clean, pulse 72, fair appetite. Abdomen apparently normal in every respect, except that on palpation a hardness was discovered in the right iliac region, deep seated, and in size something like a turkey egg, and tender on pressure. It appeared to be slightly movable from its position, and quite hard. It was free from the abdominal wall. There was no pain in the thighs nor back and his limbs were straight in bed.

I directed a light linseed meal poultice. I watched him until the 8th, the thirteenth day of his sickness, and observed but little change in his condition. On the following day he complained of having passed a restless night; pulse 84; a slight elevation of temperature indicated. Increased soreness over the tumor which is apparently considerably enlarged.

The aspirating needle was inserted to the depth of three inches, and two ounces of pus withdrawn. It was decided to open the abscess on the morrow. Next morn-

ing the patient had passed a comfortable night under a small opiate; feels better; soreness greatly lessened. It was deemed best to pass the aspirating needle into the abscess as a guide to the operation. Its entrance was evidenced by the withdrawal of near half ounce of pus—all that could be obtained. A two inch opening was made parallel to Poupart's ligament, and the pus cavity was found lying deep in the iliac fossa, but scarcely any pus was remaining in it. A rubber drainage tube was inserted and carbolized dressings applied. The relief was entire, and the patient was well in about four weeks.

Without discussing the causes and nature of this class of abscesses I only desire to refer briefly to their diagnosis and treatment.

The following deductions are drawn from this case and others, the reports of which I have seen:

1st. The symptoms vary greatly, rendering the diagnosis somewhat difficult. The symptoms, as commonly given, are misleading in that the physician is led to expect more positive symptoms than are often to be found. There may be such an entire absence of active indications, that the nature of the case may be overlooked and much mischief may result. Therefore the only absolutely certain means of diagnosis is the hypodermic or aspirating needle. This is absolutely indispensable.

Dr. Bull, in the Medical Record (N. Y.), declares "the punctures of the needle harmless either into the lumbar region or the iliac fossa." There is abundant evidence that this statement is correct. He further says that it is the only trustworthy means of ascertaining the presence of pus. Both the general symptons and the local conditions mislead us in this respect. There are patients who are attacked with high fever, severe pain, chills, and even sweating, whose inflammation undergoes resolution; and there are others in whom the abscess reaches great proportions with trifling disturbance.

Treatment.—Incision down upon the abscess and free evacuation of the contents.

I wish to add to this report one suggestion. It occurred to my mind in the management of my own case, and was strengthened by reading Dr. Bull's fourth case reported in the Medical Record. In this case a small amount of pus, about one-half drachm, was withdrawn by the needle, after which an incision was made but no further pus discovered. Relief was at once obtained and the wound healed nicely. It is suggested by the doctor that the incision gave the relief. That may be so, but the question arises, did not the withdrawal of the pus, even the one-fourth drachm, give the relief? Would not the simple withdrawal of the pus have been all that was needed? or would not in all probability the pus have been absorbed, and so have ended the trouble?

In my own case I aspirated, withdrawing two ounces of pus. Next morning found the patient much more comfortable, when he was visited for the purpose of opening the abscess. It was thought best to insert the needle as a guide to the operation, and two ounces more were withdrawn—all that would flow out. When the sac was reached it was found empty of pus. Under appropriate dressings it healed nicely in about four weeks.

My suggestion is this: To draw all the pus from the abscess by a needle large enongh, and trust the case to go on to resolution without an incision, unless subsequent developments should make it advisable. It is true that pyogenic membranes are sometimes hard to get rid of, but it is also true that pus is often absorbed and resolution takes place without operation. I firmly believe the suggestion a good one and worthy of trial, and if opportunity presents I shall carry it into execution.

SURGICAL CONGESTIVE PNEUMONIA FOLLOWING OPERATIONS AND INJURIES—REPORT OF THREE CASES.

BY P. H. MILLARD, M. D., STILLWATER.

CASE 1.

J. S.; aged 31 years; occupation, machinist; while throwing a belt from a rapidly revolving pulley, his right arm was caught and torn off at the shoulder joint. After disarticulating the head of the humerus and trimming the flaps, I had left a raw surface of several square inches. Patient received no other injury at the time.

Five days after the accident a well marked pneumonia suddenly developed in right lung. Patient had a distinct chill with exacerbations of fever, and a temperature ranging from 100 deg. to 104 deg. Objective signs of well marked pneumonia lasted two weeks before resolution was established. There was but little expectoration at any time. Patient made a slow but perfect recovery. There were no indications of an accompanying pleuritis during the pneumonia.

CASE 2.

J. S. A.; aged 54; occupation, general lumberman. While inspecting some machinery about his mill, he was caught upon a slowly revolving shaft and his left arm torn off at the shoulder. The disarticulating of the head of the humerus and trimming of the flaps added greatly to the already exciting shock. Patient rallied nicely, however, and progressed well until end of fourth day, when a distinct pneumonia developed in the right lung. The physical signs were well marked. Patient sank rapidly, and died five days from receipt of the injury.

CASE 3.

R. G. P.; aged 75 years; retired, in robust health. Operated for a strangulated, inguinal hernia. Strangulalation had existed but a few hours and operation was devoid of any accident. Patient did very nicely for one week. The wound healed mostly by first intention and patient had been able to sit up in bed on fifth day after operation.

On the eighth day after the operation, I was called in and found he had suffered a severe chill in the night and was now having great pain in the right side. Physical exploration revealed a well marked pneumonia of right lower lung. Patient sank rapidly and died within twenty-four hours of date of the chill.

Remarks.—I report these cases very briefly to direct the attention of the profession to a complication following severe surgical operations and injuries, that is rarely diagnosed by the surgical attendant.

The literature of surgery is quite nearly barren of any reference to surgical pneumonia. The only article I am able to find treating of pneumonia following severe surgical operations and injuries, is by Erichsen, printed in the Royal Medico-Chirurgical Transactions, Vol. 26, 1843. Mr. Erichsen classifies his cases as a congestive pneumonia. He reports a series of sixty-two post mortems made in deaths following surgical operations and injuries of various parts of the body. Of this series of post mortems the lungs were found to be in a decidedly pneumonic condition in twenty-eight cases. Slightly pneumonic in eleven cases and absolutely healthy in only fourteen. The pneumonia had reached the stage of complete solidification in seventeen cases. After meeting with my cases of surgical pneumonia in practice, and making researches of its literature, I was much surprised

to learn that the lungs were so frequently found in a congested condition, following death from traumatism. In his compilation of cases, Mr. Erichsen excluded all cases of pneumonia following erysipelas or pyæmia.

Of the causes inducing congestive pneumonia, I should classify, as first, a diminution in the functional action of the nervous system in consequence of the irritation of operations and injuries, or, more briefly, shock; second, profuse discharges from wounds; third, maintenance of body in recumbent posture a great length of time; fourth, impure air or crowd poisoning.

It seems to me not improbable that we may get pneumonia by metastasis in rare cases. The objective symptoms in these cases are not infrequently quite masked. In fact it cannot be otherwise in this form of pneumonia. We should, therefore be upon our guard and make frequent physical explorations of the chest. I believe this to be the cause of many of our unexpected deaths following minor surgical operations and injuries. If there is a predisposition to congestive pneumonia following operations and injuries, one should be fortified therefor. And in all severe operations and injuries we should administer a prophylaxis of quinia, digitalis and the diffusible stimulants. Where pneumonia has already developed, our main reliance should be in the use of digitalis strychnia and the diffusible stimulants, internally, and hot fomentations or rapid vesication, locally. We should scrupulously avoid any depressing remedy, and remember that in the free use of supporting remedies, we have our "*sine qua non.*"

A PECULIARLY COMPLICATED CASE.

Vaginitis—Infection of Husband—Peritonitis—Exploratory Laparotomy—Pyonephrosis—Nephrectomy—Death—Autopsy.

BY JAMES H. DUNN, M. D., MINNEAPOLIS.

In February last Mr. X., a farmer 60 years of age, presented himself at my office with a moderately severe urethritis. He presistently disclaimed any sexual intercouse except with his wife, whom he said had been subject to a "stinking discharge" from the vagina for some time past. As we shall be chiefly concerned with the case of Mrs. X., it may be sufficient to state that Mr. X. had an urethritis which pursued the average course of a moderately severe first case of gonorrhea, presenting a stage of increase of a week's duration, remained pretty severe for ten days or two weeks more, and dwindled to the close of the fourth week to a slight gleet, which disappeared in the course of two weeks more. During this time he had the usual ardor urinae, considerable disorder, a severe orchitis, and some irritation of the neck of the bladder; in short, about the regulation first gonorrhea.

At my request the wife was brought to the city for an examination. She was a lady 58 years of age and six years past the menopause. She had quite a severe vaginitis, but there was not the heat and tumefaction which might have been looked for in a case of gonorrhea, and the pus was ichorous and fœtid and seemed to be secreted in part from vagina and to issue partly from the cervix. The vaginal lymphatic gland in the region of the right broad ligament was considerably enlarged. The uterus had not undergone the post-menopause atrophy but was otherwise apparently healthy. Ovaries were not made out at

this time as examination was painful. There was evidence of cystisis, alkaline urine containing considerable pus passed frequently in very small quantities, with much pain before, during and after passage.

She did not present a very clear case of genorrhea, but I thought it probable that age, feebleness and want of cleanliness might account for the peculiarities of the case, yet I remained somewhat in doubt as to the specific cause. She stated that she had been subject to an offensive vaginal discharge for a long time, but that the severe symptoms had appeared quite suddenly about three or four days previously to consulting me.

She was given alkalies with infusion of triticum repens internally, with the hot douche and iodiform tamponade of the vagina, she was soon comfortable, and February 24th, sixteen days after first visiting me, she got out of bed seemingly quite well. On the 25th I was called in haste to see her as she had suddenly been taken worse. I found beginning peritonitis and prescribed opium internally and turpentine strips locally. On the 26th the peritonitis seemed to be general. There was stercoraceous vomiting and her condition was very precarious. I now learned for the first time that her health had been bad now and then for a year and a half past, and that a physician had tapped a small tumor in the right side eighteen months before, and removed a considerable quantity of clear fluid which she was told came from some appendage of the womb.

On the 27th a consultation was held with Drs. Abbott and Burton. They found general peritonitis, and with me believed it due to extension of gonorrheal inflammation through the Fallopian tubes to the peritoneal cavity. No tumor could be felt, but the severe peritonitis of course rendered a very searching investigation of pelvic and abdominal cavity difficult or impossible. For several days ¼ gr. doses of morphia were given sufficiently often to

allay pain, and while under its influence she seemed to do fairly well. March 8th, after a two days' absence from the patient, I found a large tumor in the right iliac region, which the peritonitis and tympanitis rendered difficult of bi-manual or combined examination, but the change in the abdomen since my last visit was very visible. I explored it with a hypodermic needle and obtained a clear fluid, which was accidentally spilled on the way home and hence not examined. I could make out no connection with the uterus, nor did it dip down into the pelvis as most pelvic tumors do.

The whole history of the case was misleading. The husband was in the fourth week of an urethritis which no one could distinguish from the average gonorrhea. She was first attacked with vaginitis, followed by cystitis, and after its disappearance peritonitis first appeared in the pelvic region, and became rapidly general. It was said that she had had a tumor aspirated years ago, but gave no mention of kidney or bladder trouble previously to this attack.

Owing to the patient's condition no definite diagnosis was made, though the possibility of hydro (or pyo) nephrosis was not considered, but rather cystic disease of the uterine appendages suspected. Believing an exploratory incision justifiable to determine the exact state of affairs, Drs. Dunsmoor and Burton were called in consultation and concurred in this opinion. With their assistance the abdominal cavity was opened and the tumor was found, much to our surprise, to be a pyo-nephrotic kidney something larger than a man's head. Two questions now presented and demanded immediate solution. 1. Should nephrectomy or nephrotomy be done? 2. In either case, should it be done through the exploratory abdominal incision, or should this be closed and the tumor be approached through another incision in the lumbar region?

As the patient was very thin, with loose abdominal

walls, I found little difficulty in working my way between the abdominal muscles and the parietal peritoneum and reaching the tumor. Hence, we decided the second question in favor of the abdominal section.

In the opinion of the gentlemen above named, the incision and drainage of the tumor was believed to be safer than its extirpation, as it was at many points adherent to intestines and stomach. Hence, a trochar was thrust into it, and after the discharge of about a gallon of clear liquid, the evident cause of the rapid growth, about two quarts of offensive pus was drawn off and the cavity thoroughly washed out. The collapsed cyst walls were easily drawn forward and stitched into the abdominal wound, which was dressed. The operation was done with strict antiseptic precautions.

I neglected to say that there was universal peritonitis of a severe grade; all abdominal organs being glued together to a remarkable extent by a copious, soft fibrinous exudation, nowhere sufficiently organized to prevent separation without tearing of the tissues.

For the next two days succeeding the operation the patient did much as before the operation. There was no rise of temperature above that observed before the incision. She sank and died at the end of the third day from peritonitis.

At the autopsy, made ten minutes after death, the right kidney was found to be reduced practically to a piogenic sac, no secreting surface being left. The ureter, though much dilated, in the upper course especially, was not obstructed at any point. The opposite kidney was apparently healthy, though a minute examination was not allowed. The bladder presented evidences of a chronic cystitis. Ovaries much atrophied; uterus and tubes normal except mucous lining congested and evidently lately subject to an inflammation. The universal peritonitis observed at the operation was practically the same except

that adhesions were slightly more firm and fibrinous exudations somewhat increased.

There was little or no serous exudation. There was not a drop of pus in the cavity nor the wound, which was united throughout; *i. e.*, quite firm union, sufficient to reclose the peritoneal cavity. She had succumbed to the peritonitis, which would have proven fatal in about the same time had she not been operated upon. This assertion may be confidently made from two standpoints: 1. The appearance and extent of inflammation on opening the cavity. 2. Want of any evidence of infection or increased irritation caused by the operation. It could only have contributed to her death by the shock which necessarily accompanies such an operation.

The question naturally arises, was the peritonitis an extension of the vaginal inflammation? I think it undoubtedly was. If so, was the vaginitis and the husband's urethritis specific? Of course that is, in the language of Dundreary, "one of those things that no fellow can find out," at least with absolute certainty. But I am inclined to the belief that the offensive leucorrhœa in some way through no infidelity of husband or wife, but rather by processes of putrefaction and exposure to the air, became virulent; in short, developed a gonorrhea *de novo*, infecting the husband and sprouting from the vagina to the abdominal cavity of the woman. The peritonitis, in some way by pressure, shut off the exit through the urethra in an old pyo-nephritic kidney, which had been overlooked, and rapidly falling forced itself upon our attention.

While the error in diagnosis seems quite glaring, I yet believe that, under such a combination of circumstances, it was, if not excusable, one very likely to occur, and for this reason, if for no other, the case seemed to me worthy of report.

OBSTETRICS.

WM. DAVIS, M. D., CHAIRMAN.

REPORT OF CHAIRMAN.

Mr. President, Ladies and Gentlemen of the Society:

In the discussion of a recent paper upon the proper management of breech presentations, one of the speakers stated that he thought this a subject well understood by the profession, and that there were few points connected with it which were not definitely settled.

If this speaker was familiar with the commonly quoted statistics of breech presentations he must have been willing that the science of midwifery should stop its advance in this direction after having achieved a very moderate degree of success.

There have been no very recent reports of the mortality among children born with the breech presenting, but late editions of works on midwifery show that about one child out of five is still-born. Now, when it is considered that this position of the child can hardly be called an abnormal one, it must be admitted that to deliver such a proportion of dead children is an opprobrium upon the profession. Not that the attending physician is to be held responsible for all such mishaps. There are excellent reasons, derived both from theory and experience, for believing that the presentation of the breech itself is an indication that the child has a poor show for life, apart from the actual dangers it must encounter during delivery.

I cannot do better here than to quote from a communication from Dr. Atkinson, of St. Paul. Dr. Atkinson says:

"In answer to your questions about breech presentations, I can only say that my experience has been very limited, and confined entirely to premature labors. I believe, however, that in the majority of cases where the breech presents, either the child is below the normal size or the birth premature, and that with children at term the difficulty in delivery and danger to the child will be in proportion to its size."

I think this view will be borne out by experience, although I have not been able to get at the statistics of the subject. A strong argument in favor of the belief that these children are usually premature or undersized is the very fact that the breech presents. The explation of this is very simple; for, although at full term the head presents ninty-six times out of a hundred, it is only at the very end of pregnancy that this position of the fœtus becomes firmly established. At the end of the sixth month, for instance, the head presents only in a little more than fifty per cent. of cases, the fœtus being so small relatively to the cavity of the uterus that its position constantly varies, and the presentation is almost a matter of chance. During the seventh and eighth months the rapid growth of the fœtus curtails this freedom of movement, and the percentage of head presentations rapidly increases. But even during the last few weeks of pregnancy the proportion of breech presentations is much greater than at full term. This is well shown at what are called the "examination days" at some of the continental lying-in hospitals. Applicants for admission to these hospitals are received only on certain days, when they are all collected in a room and examined at wholesale by the assistant to the clinic and the students. Most of the women are in the last few weeks of pregnancy, but the large number of

breech and transverse presentations is always striking. If the cases be kept run of up to the time of delivery, it will be found that almost all of them become spontaneously transformed into head presentations.

Since, then, premature and poorly developed children show a tendency to breech presentation, it is reasonable to expect a greater mortality among children born in this fashion, than among those born in the ordinary way; but even after making due allowance for this source of mortality, the proportion of still-born children remains too high, and it is well worth while to enquire whether it is not the custom to do too much or too little in the management of cases where the breech presents.

There seems often to be an erroneous impression that a breech must always be delivered artifically and that delivery cannot be too quickly accomplished. As soon as the breech comes within reach, there is an almost irresistible temptation to seize it, and to expedite the labor as much as possible by traction upon the body of the child. Dread of the necessity of announcing to the parents that the child is still-born and of making the lame excuse that children born in this fashion are almost always dead, makes the attendant pull the harder. The result is that the arms, instead of being expelled with the body by the contractions of the womb, very often slip up beside the head and cause it to jam at the brim. Moreover traction upon the body causes the head to reach the arch of the pubes in a semi-extended position instead of sharply flexed, and at the most critical moment there is delay in bringing about the flexion necessary to sweep the face over the perineum.

Is it not somewhat presumptious to take it for granted that nature cannot manage these cases herself without our interference, especially when the results with interference are so poor? Would it not be well to leave the case to nature as much as if it were a head presentation, and,

watching carefully the cord, interfere only when signs of danger to the child appeared? We may profit by the experience of Hunter, who tried both plans and who says in his "Lectures:" "When I first began to practice, I followed the old doctrines in breech presentations, although I did not like them; but yet dared not broach new ones, till I got myself a little on in life; at this time I lost the child in almost all the breech cases; but since I have left these cases to nature I always succeed."

There is one class of breech presentations where interference is very necessary, that is where the presenting part becomes impacted in the pelvis. The treatment of this complication is undergoing a radical change in regard to the use of the forceps. Until within a very few years the sentiment of the profession was almost unanimously opposed to the application of forceps to the breech. The danger was considered a twofold one; first, that the forceps would slip and cause laceration of the soft parts of the mother; second, that injury would be done to the child by the compression of the blades. So firmly have these objections become rooted that few have cared to give the forceps a trial. A couple of years ago a suit for malpractice was brought because the perineum was torn in extracting a breech with the forceps, and the whole weight of medical authority was found to be against the procedure. It is with great satisfaction that I introduce here an account of the successful application of the forceps to the breech, by Dr. A. F. Ritchie, of Duluth, with the explanation that it reached me too late to appear upon the printed programme. Dr. Ritchie writes:

"In a case of breech presentation last January, it was considered advisable to apply the forceps. The facts were briefly as follows: A strong and healthy primipara, thirty years old, had been in active labor some

seven or eight hours, without the breech engaging fairly in the brim. Repeated attempts had been made to secure a hold on the fold of the groin without success. The pains were becoming less efficient, but the child was grasped too firmly to allow the easy bringing down of a foot. The right buttock presented, the child facing a little anteriorly of the transverse diameter of the brim. No difficulty was found in applying the blades, a good hold was obtained and the child brought low enough to pass the fingers around the fold of the groin, and delivery was thus completed. The inguinal fold subsequently sloughed, leaving after separation a spreading ulcer, which healed readily after the application of strong nitric acid.

"This case, as far as the operator was concerned, disposed of one of the statements commonly made in the books, that the forceps are not adapted to the shape of the parts in these cases. But to demonstrate the point clearly, the effect was tried on the new-born, and the conviction strengthened. Further, in a child dying on the fourth day, the efficiency of the grasp was placed beyond a doubt, and the relations of the abdominal organs to the operation shown as clearly as could be by a single dissection. It was found that the kidneys were the only solid viscera which could come within reach of the instruments, and that these organs were freely movable, and the power of the instruments to compress or displace them was kept within safe limits, both by the spinal column and the crests of the ilia. This could only be made clear by diagrams or by actual demonstration, not by description. It may be said, however, that a hold could be secured only when the trochanters were in the fenestra at their proximal end, the extremities of the blade, coming well above the crests of the ilia, which engaged in the other end of the fenestra. No appreciable

difference was found, whether the pelvic curve of the instrument corresponded with that of the child or the reverse.

"It seems desirable that this subject should be studied practically, as it readily can be by all, up to certain point. The point of efficiency can readily be settled by harmless experiments on the new-born child. That of the safety of the child, as regards its abdominal organs, should receive the light of further dissections.

"It is worth while also to call more than passing attention to the injury that may result to the child from such non-instrumental procedures as here used, as shown by the sloughing in the groin. The dangers of the blunt hook are well enough understood. In conclusion, it seems that the use of the forceps in cases of breech presentations will compare favorably with any of the other means at our disposal, and deserves more attention than it has hitherto received."

Lusk has recently appeared as the champion of this operation, and with such high authority to support it, there is little doubt that the procedure will be well tested. Dr. Lusk gives the forceps the first place among the methods of extracting the breech. He differs from Dr. Ritchie however as to the manner in which the blades should be applied, recommending that they be made to come over the sacrum and posterior surface of the thighs if rotation has taken place, and over the lateral surface of the thighs if the hips occupy the transverse diameter of the pelvis. His objection to the application of the blades over the trochanters with the extremities overlapping the crests of the ilia, is that the ilia are compressible and allow the forceps to slip. But it does not seem that the danger of slipping could be great with the trochanters and the crests of the ilia both included in the fenestra of the blades, as Dr. Ritchie describes.

If there is sometimes a tendency to interfere too much in breech presentations, there is another part of the management of labor where the tendency is quite the other way, that is in the case of the perineum. Even here, at one time, too much, or rather too ill-directed interference was counselled and practised, in the method of pressing the hand against the perineum during the passage of the head, thereby increasing the congestion and tendency to necrosis of the part, and through irritation exciting the uterus and abdominal muscles to increased activity, at the very time when their action should be nearly suspended. The results of this procedure were so unsatisfactory that a reaction from it took place, and many practitioners now prefer to avoid all interference, believing that the performances of nature in this respect cannot be improved upon. In Germany another method of managing this part of labor is in vogue, the object sought being rather to check too rapid progress of the head and to keep it crowded well up against he pubes, than to apply direct support to the perineum. This is accomplished by placing the woman on the left side at the edge of the bed. The left hand of the operator is passed between the woman's thighs and holds back the protruding head by direct pressure. The right hand of the operator is used to crowd the child's head against the pubes, the thumb on one side of the vulva, the fingers on the other, and the ulnar border of the palm pressing against the forehead of the child as the perineum begins to be distended. The head is thus kept under perfect control, and is allowed to distend the perineum only gradually. When the parts have become sufficiently relaxed the head is slowly shelled out between the pains, thus avoiding any sudden strain upon the perineum.

This procedure, which is known as the "Vienna method," gives excellent results, at least in the great lying-in hospitals, and its adoption has rapidly extended.

But even with the best management the physician only too often experiences the chagrin of finding the perineum ruptured at the end of labor. I think there are few operations more irksome and disagreeable than stiching up a ruptured perineum after a labor, to say nothing of the discomfort and pain of the patient and the damage to the physician's reputation in the eyes of the family because he has allowed the patient to be torn.

According to Olshausen's figures serious rupture of the perineum occurs in twenty-one per cent. of primiparæ and in four per cent. of multiparæ. It is easy to believe that these figures are not exaggerated, when we remember how rare it is in attending a multipara to find the perineum whole. We are accustomed to regard labor as a purely physiological process, but what about the one case in five among primiparæ where the perineum gives way? It is surely not to be claimed that nature intended that woman should burst open during the act of parturition, unless it is supposed that nature is in league with the gynæcologists.

Rupture of the perineum must be regarded as a pathological event; therefore one primiparous labor out of every five is pathological so far as the passage of the perineum is concerned, and in the failure of insuring safety by means of manipulation, is not surgical interferenee justifiable if it affords a good prospect of relief? This question has been answered in the affirmative in some quarters, and the operation of episiotomy is rapidly gaining ground, as experience shows how much can be done by surgery to save a perineum which would otherwise inevitably rupture.

This operation of episiotomy or lateral incision of the vulva to prevent central rupture of the perineum was suggested by Michaelis, about the year 1799. This does not refer to cutting the perineum in the central line for the

purpose of substituting a cut for a tear, but to lateral incisions made on each side of the vulva an inch or so from the middle line of the perineum, at the points where distension is greatest. These incisions are made just after the height of a pain, while the vulva is widely distended; a blunt-pointed bistoury with a thin blade about three inches long is passed flatwise beside the head, its edge turned outward and a cut made from a quarter to a half inch in depth, according to the necessities of the case. The long blade insures reaching what Byford calls the internal ring of the perineum, a constricting band continuous with the labia minora and marking the anterior boundary of the muscular portion of the perineum. After delivery it is found that the cuts are not much more than scratches in the vulva, although they look very deep at the time they are made; they seldom need sutures.

This operation is intended only for those cases where rupture is deemed inevitable; that is to say, in almost all forceps cases in primiparæ; in cases where the perineum is œdematous; and in those perineums which stretch far forward over the head and become very thin before dilatation of the vaginal outlet has taken place.

At the situation chosen for the incisions the strain is next greatest to that upon the perineal centre. I saw this demonstrated once in the case of a street birth; the woman, a primipara, having been delivered of a child in a door-way. On examination in the hospital, the perineum was found torn to the sphincter ani, with, besides a tear in the vulva, on each side, about an inch above the posterior commissure, about the usual site of the lateral incisions.

With regard to the success of the operation, the latest figures are from the records of a thousand cases of primiparous labors in the Berlin Maternity Hospital. Among the favorable cases where incisions were not deemed necessary, fourteen per cent. of rupture occurred, while

among the bad cases, where rupture was considered inevitable and incisions were made, there were ten per cent. of ruptures.

The great advantage of this operation is that, by substituting slight lateral wounds for the central tear, the vaginal support is undisturbed, and the necessity for a primary or secondary operation for lacerated perineum is avoided. If the lateral incisions offer a channel for septic absorption, they are certainly less dangerous than a central tear, both from their situation and extent. When rupture occurs in spite of them, the tear is made less extensive. The alleged danger of deformity of the vulva through the cicatrices of the cuts is not borne out by experience.

This subject of lateral incisions is not brought forward as a novelty. But the operation is not frequently done in general practice, and it is hoped that calling attention to its merits will aid in securing its more frequent performance. From personal experience I know that it is a very easy operation, a trifle compared to the disagreeable task of sewing up a perineum. Done at the height of a pain it is not felt by the patient, and with ordinary care hemorrhage need not be feared. Properly restricted in its application it is an operation for which there is certainly a field.

REPORT OF CASES.

BY W. L. BEEBE, M. D., ST. CLOUD.

DR. WM. DAVIS.

Dear Doctor: I send you a brief report of twelve cases of eclampsia occurring in my practice within the last seven years, in about 250 obstinate cases. First let me partially account for this unusual number of cases, relative to the entire number delivered, by stating that the major portion of labor cases in our section is attended by midwives, too ignorant to appreciate the gravity of such cases and who only call a physician when they think there is danger of immediate death. This may also account for the large percentage of fatal cases. Fifty per cent of my cases proved fatal. Of this number none were seen until they were in that condition of intense and continuous torpor or even complete coma—the result of many hours of convulsions.

Five of the six successful cases, seen soon after the commencement of convulsions, were treated by large doses of morph. sul. hypodermatically (¾ gr. to. 1 gr.) together with chloral hydrat. by the rectum, not forgetting to follow Lusk's suggestion: "As soon as grave cerebral symptoms develop, the period of folded hands has passed." If, as he says, "it is very rare for convulsions to cease previous to the expulsion of the child," and that "the larger proportion of the cases do cease after the birth of the child," the indications would seem to be to hasten the emptying of the uterus, and not to act in accordance with the advice of the older writers, who said, "attend to the convulsions and leave the labor to take care of itself." Even they would admit that to hasten labor increases the chances for the child's safety.

There would appear to be a more reasonable degree of uncertainty as to the method to be pursued in those cases of convulsions occurring early in pregnancy, say in the neighborhood of the sixth month. Two of my cases were at this period of gestation. One of them, at the time of my arrival, had had six convulsions in four hours, and was then unconscious and so continued for twenty-four hours. She then carried the child for thirty (30) days, and was delivered of a still-born. The other was delivered at full term of a healthy child.

Touching the question of etiology my faith in the truthfulness of the theory that uræmia (meaning the retention in the blood of all the excrementitious urinary elements and increased arterial tension) is the "fountain and origin of the evil" was increased by finding albuminuria in each case except one, (which was not tested.)

1st. Mrs. Henry Laudenbach, primipara, April 20, 1879. Consulted Dr. Gilman. She had had convulsions for many hours; child was born. She was in condition of complete coma and died in about an hour.

2nd. Mrs. Ed. Brennan, primipara, July 3, 1880. Had been in convulsions from 8 A. M. till 2 P. M., at which time I saw her. Was in convulsions as I entered the room and died during the seizure.

3d. Mrs. Nick Keppers, mother of large family, Sept. 24, 1880. Had six convulsions before I arrived. I proposed to hasten labor, but was not permitted on account of the interference of a young priest. Was compelled to drive thirty-two (32) miles to get the order of higher authority in the church, during which five very valuable hours were lost. Labor was terminated in my absence. I had left chloral hydrat. and bro. pot. Patient died in a few hours.

4th. Mrs. A. Gritton, 3rd labor, Oct. 15, 1881. Consulted Dr. Gilman. Had convulsions during the entire day. Chloroform inhalations; chloral hydrat. and bro. pot. being administered with no perceptible effect. After an instrumental delivery the convulsions ceased, but patient died during the night.

5th. Mrs. Cigler, 4th labor, Dec. 15, 1882. Had been many hours in convulsions when I first saw her. Had two more after an instrumental delivery, and died in a few hours.

You will notice these first five cases all proved fatal. In this connection I might give the history of my other fatal case:

8th, (in point of numbers.) Mrs. Levi Walker, 3rd labor, March 17, 1884. Having been informed that this was another case continuing for many hours, I took the priest with me, well knowing that my services would be of little avail. Found her in condition of intense torpor, the convulsions continuing after the labor had terminated. Gave her three-fourths gr. morph. sul. hypodermically. She had no more convulsions, but died in about six hours.

6th. The first successful case, August 22, 1882, was Mrs. Jno. Buckman, primipara. In consultation with Dr. Ramsey. Had one convulsion when we arrived. We gave her three-fourths gr. morph. with atropia. While the doctor was absent after instruments, the child was born. She soon had her second convulsion, when we gave one-fourth gr. morph. with atropia (1-96). No more unfavorable symptoms.

7th. Mrs. Barney Murphy, primipara, six months pregnant, July 16, 1883. Had had six convulsions in four hours. Was then unconscious and so continued for twenty-four hours. I gave her one gr. morph. sul.

hypodermically. She had two more convulsions in two hours. Gave her chloral hydrat. per rectum. She carried the child for thirty days and was delivered of a still-born.

9th. Mrs. Jos. Long, primipara, July 24, 1884. Saw her in her first convulsion. Gave her one gr. morph. and proceeded to hasten labor by vaginal injection of hot water, digital dilitations and forceps delivery. After her second convulsion gave her forty gr. chloral per rectum. No more convulsions. One peculiar circumstance in this case was the fact that her mother, at the time of her birth, had eclampsia. Her aunt was my third case.

10th. Mrs. Nagli, Pole, primipara, Aug. 10, 1884. Had been in labor for twenty-four hours when I arrived, having had three convulsions. I gave one gr. morph. and while under chloroform delivered with forceps. Soon had the fourth convulsion; gave an enema of forty gr. chloral. Nothing more unfavorable.

11th. Mrs. August Kasjenski, primipara, April 9, 1885. Had two convulsions before I arrived; arm presentation; gave one gr. morph. hypodermically; chloroformed her and delivered by turning. In a few minutes after delivery she had the third convulsion. Gave 40 gr. chloral hydrat. No more convulsions.

12th. Mrs. Peter Gartner, primipara, six months pregnant, May 4, 1885. Had had one convulsion at the time of my arrival and one soon after, having slight bearing down pains but no other sign of labor. Gave her a hypodermic of ½ gr. of morph. sul., followed in 30 minutes by 30 grs. chloral hydrat. 20 gr. doses, to be continued every four hours during the day. No more unfavorable symptoms. Was delivered at full term of a healthy child.

The indications for the use of morph. in those cases occurring early in pregnancy are only the greater in view of the fact that it is one of the best remedies for the prevention of premature labor.

I heard Prof. Reaney, president of the American Gynæcological Association, while lecturing this winter on the treatment of eclampsia, recommend highly the use of verat. vinde in enormous doses, from fifteen grs. to teaspoonful, as first brought to the notice of the profession by Dr. Fearn of Brooklyn, and later by Kenyon, in N. Y. Med. Journal, 1879.

Dr. Corson, in a recent number of the N. Y. Med. Journal, reports ten cases of puerperal convulsions in three thousand and thirty-six cases of labor, all of whom recovered as a result of very heroic blood-letting, and he thinks that he "has many times averted convulsion by copious bleeding. He quotes Prof. Penrose, who stated: "If any other method (than bleeding) be adopted and that omitted, the patient will die.

A CASE OF SUSPENDED LABOR.

The following "unique case of labor," to me at least, may be of sufficient interest to warrant bringing it before the attention of the Society.

Mrs. H., aged 27.—Irish parentage. Married at 20. Mother of six children. General health poor. Suffers from gastric and nervous symptoms. Youngest child 11 months old. On Feb. 24th was called, the messenger informing me that my immediate attention was demanded as the woman was in pain, and that the membranes had ruptured. On arriving I learned that she had been having pain, gradually increasing in severity, for some hours,

which finally caused the membranes to rupture. She stated that she had quickened or felt motion about the 10th of September, 1885. Having never menstruated since the birth of the former child, she could have no data from that source from which to determine "her appointed time."

On examination I found the following condition: Vag. normal, relaxed, moist. Os dilated to the size of a silver dollar, and dilatable. Membranes ruptured. Bony parts normal. On further examination found I had to deal with a shoulder presentation. Left dorso ant. Child movable; above brim entirely drained away; pains at this time not so frequent, but accompanied with quite marked contractions of uterus and tenseness of os.

Agreeing with the patient that she was in labor, I at once attempted to change the presentation by performing "cephalic version." This, somewhat to my surprise, was soon and easily accomplished after the metod of Braxton Hicks. Introducing the hand within the vagina, the index finger within the uterus, by gently pushing the shoulder upward and to the right, aided by the left hand externally pushing cephalic end of the child in the direction of the brim, having thus carried the shoulder upward, the head was received, and the index finger on the left hand was then used to carry the breech upward, the head finally resting on the first position of the vertex left occipito ant.

Having thus performed what I believe to be my part of the work, I rested, supposing that the pains would increase in severity and frequency. Having waited about two hours, the pains having gradually faded away, I took my departure, having made arrangements to be hastily called by telephone as soon as pains should warrant. Hearing nothing further from the patient, I called the next day. I learned that the pains continued to wane, and that she had passed a fairly comfortable night. I

then fitted a comfortable bandage, and directed my patient to resume her usual duties, this being the 24th of February, 1886.

I heard nothing further from the patient until April 10th, 1886. Was then called and found the patient well advanced in labor. In the course of two hours she was delivered of a living male child weighing eleven pounds, labor being normal throughout. The child bore evidence of marked development, an abundance of hair, lengthy finger tips, small fontanelles, desquamation of skin.

This case, to those of more extended experience, may not appear unique. Here was a woman quickening on Sept. 10th. On Feb. 24th taken apparently in labor, membranes rupturing, etc. Cephalic version performed, changing a shoulder into a vortex. Pos. labor pains fading away, not to return until the morning of April 10th, 1886, forty-five days after. If she was at full term, when first apparently taken in labor, Feb. 24th, 1886, pregnancy must have been prolonged to the 321 days. Should this be termed a "missed labor," or "suspended labor?"

THE CARE OF THE PERINÆUM DURING THE SECOND STAGE OF LABOR.

Since announcing to the chairman of this section the title of this article, and long before a word of the subject matter was written, we were informed of the fact that this topic would be dealt upon at length by others, in at least two papers. This leads us at once to condense into the smallest possible space the few comments we desire to make upon the subject.

Knowing our hearers to be as thoroughly acquainted

as ourself with the anatomy of the region under consideration, we at once drop all detail in this respect. The theoretical causes of the laceration of the perinæum are not new. Practically, however, it is torn because the tissues are too tense, delivery too rapid, child's head too large, or the position abnormal. The many modes suggested by writers of distinction of supporting the perinæum by pressure, show that it is popularly supposed to be a competent means for the prevention of this accident.

Let us remember that the muscular outlet has one fixed portion, at the pubic symphisis; also, that the wound occurs in the line of the raphe, beginning at the fourchette, the part *furthest* from the fixed point, ninety-nine times out of the hundred.

It immediately occurs to us that stripping, pulling with the fingers in the vagina, or pushing with thumb and finger horse-shoe shaped, the perinæum backward over the advancing head, must require much more space, and consequently stretching or tearing, than to cause the delivery to take place as near as possible to the symphisis, allowing the first anterior advancement of the parts.

Our method of the "care of the perinæum during the completion of the second stage of labor," is briefly as follows: Compel the patient to cease all voluntary effort at expulsion; secure constant pressure from an assistant on each side, pushing all the tissues from the tuberosity of the ischium towards the vulva, thus enforcing the utmost relaxation of the elastic ring so strained and stretched.

Accomplish the delivery through our own effort, if possible, by pressure of middle finger of right hand in rectum, index and third fingers at either side, with thumb crowding the projecting portion of the head directly against the pubes, while the left hand compresses the extended part immediately above the fourchette, so as to keep back the pressure outward against the perinæum,

and at the same time controls absolutely the progress and rapidity of the delivery.

If at any time during these manæuvers we detect the slightest abrasion at the posterior comisure, or a tear of any extent, the head is forced back into the pelvis and the labia incised laterally, then the delivery is completed in the manner described above with very successful results.

Of course we make use of the well established rules, giving chloroform, cause head to recede, allowing periods of rest, relieve pressure, secure proper position, lubriccants, incisions, etc., and claim nothing new in this method save in the manner of taking the pressure off the perinæum by the above described manipulation; the relaxation of parts by assistants, and the compression of the child's head external to fourchette, leaving perinæum proper untouched.

The practice spoken of by so many writers, pressing support against the perinæum, we believe to be of no value beyond carrying the head against the pubes, while the fashion of giving a sheet or towel to two assistants and having it drawn tightly against the perinæum, distended by the advancing head, we pronounce pernicious in that it pulls all other tissue away from the vulva, thus putting additional tension on the already overstretched perinæum at the raphe or weakest part.

DISEASES OF CHILDREN.

W. J. MAYO, M. D., CHAIRMAN.

REPORT OF CHAIRMAN.

Mr. President and Members of the Minnesota State Medical Society:

As your chairman of the section on diseases of children, I would report unusual interest in this department during the past year. A paper on infant feeding, by H. L. Koon of Northfield, is deserving of your careful consideration. An unusually complicated case of typhoid fever is recorded by J. C. Adams of Lake City; P. N. Kelly of Rochester reports a case of malignant diphtheria, in a careful paper on that topic; Frank Woodward of Minneapolis reports a case of diabetic coma; and, lastly, I would call your attention to the subject of infantile spinal paralysis, which I present for discussion in the following pages:

INFANTILE SPINAL PARALYSIS.

Frequently the only ascertainable cause of infantile spinal paralysis is that convenient scape-goat, "taking cold." Although it may be preceded for a short time by slight fever or dental irritation, it is never dependent upon antecedent disease. Usually the only history that can be obtained is that the infant, when taken up from sleep, was found to be helpless in some portion of its extremities, but otherwise appeared in perfect health.

The disease may occur as late as the tenth year, but is most frequent between the ages of six months and two years. The lower extremities are the favorite seat of the disease, and the sexes are affected equally.

An atrophy of the gray matter in the anterior horns of the spinal cord is the only appreciable lesion. The origin of this is probably a sudden vascular irritation, affecting most frequently the lumbar enlargement of the cord. When the lesion is no greater than this, the paralyzed muscles may begin to improve gradually in power in a few days or a week; but, when the lesion amounts to a myelitis, atrophy of the motor cells occurs, and the paralysis is permanent. The affected limb becomes wasted and blue, the sensibility remains unimpaired, but the temperature is from two to ten degrees subnormal. The bones and cartilages become atrophied, their growth is but slight, and more or less deformity is manifest.

Deformities result from atrophy of the muscles, stretching of the ligaments allowing separation and luxation or subluxation of the joints, and disturbed equilibrium of the unaffected muscles. Deformities may result even when the paralyzed muscles fully regain their use. In the production of these deformities the flexors and abductors are largely at fault, when not included in the paralysis.

The temporary loss of function gives the balance of power to the opposition; and, by use of the limb in an unnatural position, spastic contractions of these muscles ensues, resulting most frequently in the different varieties of acquired club-foot, which are presented to notice long after other evidences of the paralysis have disappeared. The prognosis is more favorable when improvement is noticed early in the disease, but after one year no further gain can be expected. We often see an apparent improvement due to the increasing ease with which the patient manages the disabled limb, but this improvement is more apparent than real.

Paralysis occurring in the upper extremities as a rule improves more rapidly and perfectly than in the lower limbs. The deltoid muscle in the upper, and the tibialis anticus in the lower extremity, are most frequently permanently crippled.

If the atrophied muscles fail to respond to a strong galvanic current, they have undergone fatty degeneration, and there is no hope of further recovery. When seen early, ergot and the bromides would seem calculated to be of benefit; in the later stages strychnia has considerable reputation, given by the mouth or hypodermically into the paralyzed muscles. It should be administered in increasing doses for a length of time.

Electricity has great reputation in the treatment of this disorder, but I must express a doubt if it has any value except as a muscle exercise in preventing atrophy. If our pathology is correct, how running an electrical current up and down a paralyzed limb can affect an organic change in the spinal cord I cannot conceive. Experiments have proved that any safe current of electricity will pass through, not the cord, but its coverings; so, even if we would, we could not affect the lesion. I am inclined to think that much of the reputation of electricity has been cheaply earned by the improvement which time effects. The Faradaic current is employed if it will produce contractions; if not, the galvanic until the electrical sensibility is increased sufficiently for the Faradaic to produce a response in the muscles. Short, frequent applications of electricity continued during months have the most testimony in their behalf.

Friction and massage with applications of heat are of undeniable service in exercising the muscles; they tend to prevent contractions and deformities particularly while improvement is going on.

The mechanical treatment is the most practical part of the subject to us, as physicians, for the majority of cases

are seen either when the atrophy is so complete as to preclude the possibility of other treatment, or the paralysis has largely disappeared, leaving permanent contractures and deformity, causing most cases of acquired club-foot. In the mechanical treatment the objects in view are, to artificially aid the paralyzed muscles, to give mechanical support to a useless joint, and to overcome spastic contractures of opposing muscle fibers.

In the comparatively rare cases of deformity of the upper extremity the extensors are most liable to be affected, and flexion of the fingers and of the hand on the arm may occur. If spastic contractions of the muscles take place, tenotomy may be required, with the subsequent application of rubber muscles. I have never treated a case in which permanent deformity of an upper extremity was due to contractures. The deltoid muscle, which most frequently remains powerless, cannot be greatly benefited by mechanical treatment.

In the lower extremity, if an entire limb be paralysed, an appropriate apparatus will often convert a useless appendage into a natural peg-leg: this may be accomplished by a modified hip-joint splint consisting of a long outside rod of steel extending from the crest of ilium to the sole of the foot, with a stout body-piece bolted firmly at its upper extremity, to which can be fastened perineal straps; the knee and ankle can be fastened to this splint by straps, the inferior extremity ending in a short horizontal bar projecting inward; to this the shoe is riveted.

The practical working of the splint may often be enhanced by a joint at the external malleolus, allowing motion of the foot upward but not downward below a right angle; this prevents the toes dropping, and allows the foot to clear the ground without the side motion otherwise necessary. If the limbs be of equal length, it will be necessary to lengthen the sound limb slightly by addition to the sole of the shoe; but, as the sound limb

rapidly outgrows its fellow, the length must soon be added to the splint. When lesser portions of the limb are affected, shorter splints consisting of internal and external steel rods are easily made by any blacksmith to suit the deformity. Care should always be taken that the joint allows no motion of the foot below a right angle.

That variety of club-foot caused by normally contracting muscles overpowering atrophied opposition, is most easily remedied by the use of rubber muscles applied to imitate the surgeon's hand in relieving the malposition. Provided the bones are unchanged and there are no spastic contractures, I have found the ordinary hooks used by ladies in fastening their dresses, of service. These set into strips of heavy moleskin plaster, one applied at the point of fixation desired on the leg, and one or more attached to the foot as the movable point; over these a roller bandage is applied, allowing the hooks to project; by connecting these hooks with rubber pocket-book bands of the requisite strength, elastic traction can be made to relieve the deformity.

Spastic contractures are caused by the use of the limb in a malposition while the paralyzed muscles are slowly regaining power. In these cases tenotomy of the contracted tendons and fasciæ may become necessary. In this expedient I have found that a sharply defined tendon, under an anæsthetic, becomes so relaxed as to interfere with its division; as the pain is not great, I prefer the ether spray or cocaine hypodermic to general anæsthesia. After tenotomy the foot may be bandaged to a bent copper splint; and later a simple brace attached to the shoe. Often tenotomy may be avoided by forcing the foot into the required position and fixing it with the gypsum bandage. If the case be one of equino-varus, overcome the varus in this manner first, dividing the tendo Achilles later. After the contractures are overcome, rubber muscles or splints may be applied as in simple cases.

Frequently a muscle temporarily paralyzed and long overstretched by spastic contractures of opposing fibers will rapidly regain power after the contractions have been overcome. Where muscles are slowly regaining power after temporary paralysis, the tendency of the antagonistic muscles to produce deformity may be counteracted by the application of a bandage or adhesive strap drawn in the proper direction.

The so-called infant's kicking board consists in fastening the soles of both feet, in normal position, to a board, (which is easily fashioned from a cigar-box cover), until the muscles shall have regained their strength.

Contractures holding the foot in an abnormal position while the bones are deformed in their growth may require exsection of one or more of the tarsal bones to relieve the disability. It has been suggested to excise lax joints forming bony anchylosis, and thus convert a useless limb into a natural crutch. From the lessened vascularity and nutrition of the paralyzed limb, which might prevent union, I doubt if this method will be frequently resorted to.

DIPHTHERIA.

BY P. N. KELLY, M. D.

Diphtheria in children is a constitutional disease characterized by a definite period of incubation, elevation of temperature and the presence of inflammatory products, either upon some mucous surface or some portion of the body denuded of cuticle. It is a zymotic disease and is most closely allied with the class of eruptive fevers.

The disease, like most others of this class, may be divided into two forms, (1) mild or catarrhal; and (2) severe

or malignant. In support of the statement that it is allied with the eruptive fevers we may say, it resembles typhoid fever in that each disease is attended with prodromata, profound malaise and eruption of the skin. Toxic cases are attended in each disease with fatty heart and embolic infarcts in kidneys, spleen and lungs. It resembles scarlatina in that to both a sore throat is common, and albuminuria is frequent in each disease.

The mild form of this disease is frequently overlooked. There is a follicular enlargement of mucous of fauces uvula and pharynx with perhaps flecks of white membrane over entire surface. The symptoms do not appear grave and pass off in two to twenty-four hours. If this mild case is closely examined there will be found swelling and tenderness at angles of jaws, in some cases albumen in urine and the characteristic slightly elevated temperature.

This mild attack may be followed by the sequels common to both mild and malignant forms. The sequels of diphtheria are four in number, (1) the continuance of albuminuria, (2) general or local paralyses, (3) anæmia, (4) neuralgia.

Malignant diphtheria is par excellence the subject of this paper. In children this form is often ushered in by nausea and vomiting, loss of appetite, general prostration. The severity of the disease is in proportion to the amount of mucous membrane involved. If the disease invades the larynx the breathing becomes sterterous and labored. To see a child struggling against this cruel disease makes a lasting impression. Sometimes the stenosis of the air passages is gradual and causes a death painful to witness.

The following is the report of a case:

July 29. Was called to see John McGowan, aged 4, suffering from sore throat since day before. Pulse rate 84; respiration somewhat loud. Ordered mixture of quinine, iron and glycerine.

July 30, 9 A. M. Patient sleeps; skin warm and dry; extremities not cold; lips dry and somewhat rough; respiration loud and snoring. A thin opaque liquid runs from nose. Sleeps with eyes half open, pupils contracted; countenance pale, slightly livid. Tongue clean at tip. Temperature is 99.

July 30, 3 P. M. Has had two paroxysms of choking this P. M., in the second of which tracheotomy is performed. The operation is followed by great relief in breathing.

July 31, 9 A. M. Rests easily to-day; sometimes little attacks of coughing through the tube; has taken nourishment well since operation. Pulse, 148; respirations, 30; temperature, 98, last night it was 100. Urine has a heavy deposit, sp. gr. 1.032, contains a large amount of albumen. There has been no mouth medication, as patient refuses to take it. A feather is dipped from water and put through tube at intervals.

August 1, 10 A. M. Temperature 100; it was 101 last night. Pulse 160. Respirations irregular; the expiration is accompanied with rales which are short and snoring. Urine still albuminous. Spat up some membranes yesterday. Pupils dilated; urine scanty.

August 2. Pulse 156; respirations 24; temperature 99; did not rise last night as usual. Breathing natural, no rales in expiration like yesterday. Boy is of a very sober disposition, never smiles or desires to play. Urine natural color, still scanty and albuminous.

August 3. Patient seems a little better; breathing per stethoscope quite natural. There is an erethematous rash over loins and buttocks. Temperature 99, last night it was 101; pulse 136; respirations 32. Urine scanty, six ounces in 18 hours; still albuminous.

August 4. Patient sleeps. Temperature unchanged; pulse less full, 140; respirations 40. Rash more diffused, being now upon neck. Urine more copious, albuminous.

August 5. Patient seems a little weaker. Rales in chest. Pulse feeble, 132; temperature 99, it was 98 last night. Has coughed up numerous shreds of membrane since yesterday. Feet are somewhat cold, rest of body warm. Takes food a little more freely than he did. Urine again scanty and albuminous.

August 6. Condition about the same as yesterday. Temperature was 100½ last night, this morning it is 99. Can breathe with some difficulty through larynx when inner part of tube is removed.

August 7. Tube removed this morning; child speaks in a whisper; looks well; takes nourishment. A strip of adhesive plaster placed over wound. Rales torn and loose over larger bronchi. Urine, albuminous. Pulse, 136; temperature 98, having been 100 last night.

August 8. Temperature 98; 99 last night. Less albumen.

August 9. Pulse 132; rales in chest; no albumen. Temperature 99, one degree lower than last night.

August 10. Patient looks well; speaks only in a whisper as yet.

August 13. Out of bed, going about for last two days; wound still open; does some breathing through it; sometimes food escapes from it; ordered carbolic acid dressing to wound.

August 14. Patient in bed. Pulse 130; temperature, normal; urine again albuminous.

August 17. Pulse 128; temperature, normal. Usually up, to-day in bed; speaks only in a whisper; some little difficulty in breathing; wound entirely healed; urine only slightly albuminous.

September 14. Patient to external appearance well; can speak aloud, but is hoarse. The child was taken to a distant state a few days latter, since which time I have neither seen or heard from him.

Features of this case.

(1.) This disease seemed to be in larynx and above; upon opening trachea no membranous lining was found, but a copious amount of mucus.

(2.) This boy had ideas of his own and would take no internal medication. A good view of his throat was never obtained. In convalescence, some days he would lie in bed, some days he would get up.

(3.) The presence of albumin for so long a time is of importance. I would like to know if the older physicians have observed "Bright's Disease" to be a frequent sequel of diphtheria in children.

(4.) This case was thought entirely hopeless for several days.

(5.) The yellowish opaque liquid running from the nostrils, being followed by the unusual termination of recovery.

INFANT FEEDING.

BY H. L. COON, M. D., NORTHFIELD, MINN.

Dear Doctor: In answer to your circular on "Diseases of Children," under treatment during the last year or previously, I will write briefly upon a subject which has impressed me most and which deserves very much more of our careful thought and study, "The Proper Food or Nutriment" for our little ones. To my mind by far the greater portion of disease and suffering of young children deprived of mother's milk comes directly through bad feeding.

This subject is too much neglected by the profession, while the profound ignorance of nurses and old ladies

who claim to know all about the proper baby food is proverbial. Improper food, and thereby too much medicine, has worked the ruin of many a little mortal. To illustrate more fully, I will give reports of a few cases in practice.

Was called to see Willie F., age three months, supposed by family to be suffering from brain fever. Found the little patient very restless, turning his head from side to side, crying and moaning continually; his face pale, pinched, wrinkled and old-looking, the bowels distended. In answer to my questions regarding the food used I was told that the child was taking food from a bottle, commencing with one-half milk and one-half water, but as the child grew worse they had added more water. Diagnosis—Starvation. I prescribed the best of cow's milk with a little cream added, and a small quantity of water sweetened with sugar of milk, and to feed him every three hours. No medicine ordered. The child began to improve immediately, and in six weeks was well and fat.

Second case I will mention was Clara W., age three and one-half months. Had all symptoms of above case, but was even more wasted. Had been taking water from the bottle, with one-quarter milk added. All the old ladies in the township had been called in, and as the child failed in strength they sagely concluded the food was too strong, and advised more water, until the little sufferer was at the point of starvation. I ordered good milk, with a small quantity of water and sweetened with sugar of milk to be given, with instructions to dispense with the water after a few days. The result was good. In a few weeks the babe was growing very rapidly, and became fat and happy.

Was called to see Willie S., aged one year, a twin. He had never done well and was still taking food from the bottle, composed of equal parts water and milk. Was at this time suffering with a copious diarrhœa, and vomited

all food soon after it was swallowed. The discharges from bowels were of a greenish color, and those from stomach mixed with bile. I endeavored to control these discharges by the use of medicine, continuing the same food, but utterly failed, the child growing worse. The diet was then changed to a prepared food mixed with water, leaving out all milk, and after the stomach had been freed of its former contents, the first dose of the new food was retained. All vomiting stopped at once and the discharges from the bowels became normal, and gradually milk was added to the food and continued with sure and permanent relief.

These few cases are sufficient to illustrate briefly the importance of proper feeding and the necessity of a very careful selection of food for young children that are deprived of mother's milk. Since, by comparative analysis, the different kinds of milk and preparations of food have been laid before us, it is negligence on our part if we fail to use proper food in any given case brought to our notice. As the young child, while in its normal state of inactivity and rest, requires more of the fatty constituents of the milk, so, when the stage of activity and muscular growth begins, the nitrogenous and cheesy elements should be added. Therefore, if it be true as has been claimed that a cow long in milk or a farrow cow gives milk richer in fats or butter than in nitrogenous and cheesy elements, then the young child should have the farrow cow's milk instead of the new milch cow, as has been the custom.

I have neither time or space to elaborate upon this subject, but simply throw out these few thoughts upon a subject of very great importance, at least to the little ones that come under our care.

DISEASES OF WOMAN.

GEO. F. FRENCH, M. D., CHAIRMAN.

Mr. President, Ladies and Gentlemen of the Minnesota State Medical Association:

Instead of presenting, as chairman of the section, a general review of gynæcological literature, I have preferred to briefly call your attention to a few points of salient interest and importance not embodied in other papers to be read before the section.

HYSTERIA.

I take this opportunity to enter a protest against the tendency of gynæcologists to assume that all forms of hysteria originate in diseases of the uterus or its appendages. This narrow view would restrict the treatment of hysteria to equally narrow limits, instead of regarding it as a phase of disordered nerve centres, involving disturbances of the emotional nature and implying, as I believe, a defective cerebral organization as evinced by the abeyance of will power.

In the recent address of Dr. Gordon, chairman of the section of diseases of woman, before the American Medical Association, great stress is laid upon the existence of organic disease of the Fallopian tubes and ovaries, as a too often unrecognized cause of hysteria. I am disposed to admit that many cases attributed to some obscure nervous disorder, really were caused by organic disease of the uterine appendages.

In elucidation of this point, I offer the following typical case:

Mrs. B., aged 32; married twelve years; one child nine years of age. Began to menstruate at the age of seventeen, without dysmenorrhœa, and enjoyed excellent health for two years (aged 19), when she was thrown from a horse and suffered a retroflexion of the uterus. This was at once recognized by the family physician, and the misplacement treated with immediate relief of the suffering and apparent success. A year later, in 1874, when twenty years of age, she married. In 1876 menstruation became suspended for three months, with great pelvic distress; it was thought by her medical adviser that the arrest of menstruation and the pelvic suffering were due to an inflammatory condition of the retroflexed uterus, which was forthwith replaced and held in position by a stem pessary. The woman turned out to be pregnant, and miscarried at four months and a half. During the year she had two spontaneous abortions, but the following year (1877) she gave birth to a child at full term, who is still living. After her miscarriage, induced by the stem pessary, menorrhagia and an exhausting leucorrhœa supervened and her health gave way, her ill condition being aggravated by the birth of her child.

Three years later, in 1880, she consulted Dr. X., of New York, who found a lacerated cervix and some ovarian trouble. Dr. X. made a trachelorrhaphy, but the operation afforded no relief to the symptoms, and he told her the trouble was probably in the ovaries and tubes. Said he: "I have twice removed these organs, and the patient who survived does not recommend the operation." She then applied to Dr. Y., who pronounced the supposed ovarian trouble to be simply cellulitis; judging the failure of the trachelorrhaphy to be due to the presence of cicatricial tissue not thoroughly removed. The patient re-

turned to Dr. X. with a full account of Dr. Y.'s judgment of the case. The former replied: "I believe Dr. Y. is entirely wrong in his opinion, and if he cures you on this basis, like a guide in the Alps I will lie down and let him walk over me." Yet he did not try to dissuade her from returning to Dr. Y.'s hospital, where she went and remained for a little over a year.

Dr. Y. reopened the cervix, discovered the supposed offending cause and completed the revised operation. The patient getting no better, he made first a posterior and then an anterior colporrhaphy, and continued to pursue the cellulitis. After a year spent in this manner to no purpose, in 1882, our patient went to London and consulted Dr. Mathews Duncan, who, after a prolonged investigation of the case, said: "I find, madam, nothing in your case worth mentioning, nothing appreciable or definable. Your sufferings are of a nature entirely beyond the pale of medical science to relieve. You are no worse off than the great majority of your sex who bear the burdens of life. Go to the Isle of Wight, walk, drive, ride horseback and become interested in the affairs of life to the forgetfulness of your own or imaginary troubles."

With unbounded confidence in his sagacity, she went to the Isle of Wight, rode, walked and exercised as enjoined, till she nearly died from a sharp attack of peritonitis. After this he held a consultation over her case with Dr. Robert Barnes, who failed to discover any ovarian or tubal disease, but considered the retroflexion the essential trouble and treated her for a time with pessaries, which only served to aggravate her sufferings.

She now went to see Dr. Thos. Keith, who was a friend of her husband's. He at once confirmed the diagnosis of Dr. X. and thought a Tait operation was indicated. The risk, however, was so great and Dr. Y. had so positively opposed the operation and was so sanguine of curing her without it, Keith advised her to return to New York and

wait a year before coming to a decision. She accordingly returned to Dr. Y.

She remained in New York eleven months without improvement, when she wrote to Keith begging him to do something for her relief. She was entirely exasperated and ready to submit to anything. He replied to her letter by saying that he now felt that a Tait operation was justifiable and bade her come to London immediately.

After a month's preparatory treatment, in October, 1883, both ovaries and tubes were removed. He found double pyo-salpinx and cystic disease of one ovary. Just before operating he received a letter from Mathews Duncan, who had in some way learned of his purpose, deprecating the operation and denouncing all operations of this class. Keith subsequently sent the diseased ovary and tubes to Duncan for inspection. A few months later Keith shortened the round ligaments after the Alexander method, and brought the reflexed uterus up in place, where it has remained in the normal position ever since.

Two years and a half have now elapsed since these operations, and the patient assures me she is in perfect health.

I am persuaded, as this report illustrates, that a great proportion of the cases of so called intractable cellulitis are really instances of organic disease of the uterine appendages.

An attempt has lately been made and evidence brought forward to show that the frequency of disease of the uterine appendages is greatly exaggerated.

An able exposition of this side of the question was recently presented by Dr. Henry C. Coe before the New York Academy of Medicine.

Now, while I believe that disease of the uterine appendages is even more frequent than supposed, and often exists either unrecognized or under the name of simple chro-

nic cellulitis or geritonitis, I am convinced that the Tait operation is resorted to more frequently than is necessary and that the comparatively slight pathological changes found in many cases operated upon do not justify the risk.

The following remarkable case is one in which I saw, beyond a shadow of doubt, the indications of a Tait operation:

Mrs. X., age 41, of slight frame and nervous temperament. At the age of 13 was thrown from a horse, causing a retroflexion of the uterus, for which she was treated 8 or 9 years to little purpose. Married at the age of 26. Four years later she was under the care of Dr. T. G. Thomas for vaginismus, remaining under treatment two years.

Six years therafter, when 38 years old, she suffered an abortion which marks the beginning of very intense menstrual headaches. These attacks grew worse until opiates and even chloroform failed to afford the slightest relief.

There existed a very rigid and hyperæsthetic stenosis of the internal os, which in 1883 was entirely relieved by divulsion and the cure has been permanent. But she is still full of incomprehensible pains about the heart and lungs and more especially in the region of the pelvis.

The retroflexed uterus appears to lean so painfully against the rectum that at very short intervals she suffers from bowel trouble simulating attacks of dysentery.

A few weeks ago this patient consulted me in a very desperate state of mind. Her sufferings, she said, were no longer endurable, something must be done to relieve her. I may say, without exaggeration, that she has boxed the compass of human distresses. A digito-vaginal examination revealed the uterus lying as usual against the rectum and exquisitely tender; the roof of the vagina was rigid, and so sensitive that, on being touched, she recoiled in apparently great agony.

I suspected disease of the uterine appendages, and frankly said so. Mrs. X. was ready to submit to any operation advised, but before any well founded decision could be arrived at I exacted an examination under ether. As soon as the anæthesia was complete the rigidity of the fornices disappeared, and a thorough bimanual examination satisfactorily eliminated all appreciable disease of the ovaries or tubes. So vanished my Tait operation.

The occasional occurrence of hysteria in males, a fact well authenticated, effectually disproves the theory of its uterine etiology.

The vexed question of the hour in this province of medicine is, "are antiseptic precautions necessary in abdominal sections?" The majority of specialists answer affirmatively, a few magnates like Keith and Bantock demur, while Tait, with incontrovertible evidence of facts, couched in denunciatory language, flung at the germ theory in general, opens all his well-trained batteries of logic and ridicule upon the system of Lister.

In the medical world Tait is the counterpart of Ingersoll in the religious; the iconoclast of medical orthodoxy. As the laity disbelieve in law and order because Ingersoll successfully ridicules the notion of a personal devil, so an analogous erroneous conclusion is liable to be drawn by the profession at large. Tait's forcible denial of the necessity for using germicidal antiseptics, and his apparent disbelief in the existence of germs, will lead many to infer that the scrupulous cleanliness of Listerism is altogether superfluous. Incalculable harm will result.

The painstaking methods of Lister have insured that degree of cleanliness which is the *sine qua non* of all blameless surgery.

THE SPOON SAW.

BY H. H. WILCOX, M. D., ALBERT LEA, MINN.

During the latter part of February last I was hastily called to see Mrs. L., age 35 years, married and the mother of one child then about twelve years old. The patient was as pale as the sheet under which she lay, and so reduced from frequent periodical losses of blood that to talk or move was to "faint." Large doses ergot fl. ext. were frequently administered until hemorrhage was quite well controlled. A digital examination now being made, reveals the fact of a hard round mass pending from and through the cervix. Fibroid tumor was suspected and next day, hemorrhage having been more fully controlled, the diagnosis was confirmed by an examination per speculum. The tumor weighing about six ounces was attached by a pedicle about an inch in diameter immediatly above the internal os.

Having toned the patient up for about ten days, and now assisted by Drs. Smith and Todd, the patient being under the influence of an anæsthetic, was placed on a good solid table in Sims position: I fixed a good vulsellum forceps firmly in the texture of the tumor, drew it well down and proceeded to sever it from its attachment by the use of Dr. Thomas' spoon saw. The work of removal was quickly and easily accomplished. Cervix and vagina were now thoroughly sponged out and filled with carbolized cotton, the patient making rapid and thorough recovery.

2d. Mrs. O., age 44 years, mother of five children, has had one or two miscarriages, family history pretty good. She has, for some months, been troubled with constipa-

tion—a fetid discharge from vagina,—frequent desire to micturate—irregular and excessive menstrual discharges, some gastric disturbance—mammae showed a secretion of milk, and the urine, on standing, acquired the so-called mutton-broth appearance. Since the middle of May has had frequent severe hemorrhages which, however, yielded quite satisfactorily to the free use of ergot and quiet.

About May 20th patient submitted to a digital and soon after an examination per speculum, which revealed the existence of a large somewhat modulated tumor protruding from the os uteri, the back of which lay heavily upon the rectum. So massive and large was the pedicle of this cauliflower tumor that it seemed to fill tensely full, and firmly fix the cervical portion of the organ; blood flowed copiously on the slightest manipulation.

Hemorrhage having been well controlled, the strength of the patient reinforced, assisted by Dr. Wedge and my worthy young friend Dr. Sneve, after etherizing the patient on June 2d, with the use of Errick's speculum,—patient being in Sims position—proceeded to remove the tumor which was firmly attached throughout the region of the internal os by the use of the spoon saw, traction being made on the tumor at the same time by the use of the vulsellum, caused the blood to flow quite freely; but after the growth was removed by the cut of the spoon saw and the cervix and vagina filled with carbolized cotton there was not a drop of blood. The patient at this writing, June 10th, is doing remarkably well and bids fair to make a good recovery.

The after treatment in these cases consisted of thorough vaginal irrigation by the free use of carbolized hot water, local applications of tano glyesite, etc., in conjunction with good constitutional tonics. I report these cases more in order to show the efficiency and safety of the spoon saw than I do for their rarity or magnitude. I

think it preeminently *the best* instrument for the removal of any fibromata from the uterine walls, especially where the loss of blood is, or would be considered an object. The instrument is fully described by Dr. Thomas in his admirable work on diseases of women.

NEPHRITIS AS A RELIC OF PARTURITION.

BY R. O. BEARD, M. D.

The title of this paper might suggest that it should, more properly, be relegated to the department of obstetrics, but I do not propose to discuss, save incidentally, the existence and significance of albuminaria in pregnancy. My intention is to note its consequences and to emphasize the importance of their consideration to the gynæcologist.

That during, or after labor, albuminuria exists in twenty per cent of the entire number of cases, and that in fourteen per cent. of pregnancies it is observed at some time during their course, are facts that would, naturally, lead us to anticipate that a degree of permanent disability of the kidneys would commonly persist as a result.

But the accumulated experience of the profession has led to precisely the opposite conclusion. Indeed, until lately, it has been accepted as a recognized truth that this albuminuria does not usually involve actual nephritis, and that, if an acute inflammation is excited, it does not drift into a chronic form. I believe that the opinion of the profession has swung too far in this opposite direction.

Pathologically but little evidence has ever been brought to bear upon the question; in fact, such evidence

is difficult to obtain on account of the small percentage of deaths and the still smaller number in which an autopsy is warranted or permitted. There is ground, of course, for this almost universal belief in the absence of the nephritic sequelæ of pregnancy, as there is a foundation of truth beneath most forms or instances of error. In a small proportion of cases, reflex disease of the bladder causes a slight transudation of albumen through the walls of that viscus and its presence in the urine is thus accounted for. In others, as Galabin has shown, the albuminuric condition is due to the pressure of the gravid uterus upon the renal veins.

This passive congestion of the kidney is rarely, however, so long continued as to cause structural changes in the organ; and, if it does, these changes do not affect the excreting tubules. Upon the removal of pressure, physiological function is readily restored. Again, pressure on the ureters by the pregnant womb obliges the kidney to excrete against an increased tension in the former, and thus induces the perversion; but this pressure is almost invariably relieved so soon as the uterus rises out of the pelvis, and, hence, as a causative influence, it exists only during the early months of gestation.

But there are still three remaining causes of albuminuria which are cited, with good reason, by Galabin and others, and which are so much more potent that we may well look upon them as factors in the production of actual nephritic disease. These are, briefly stated, (1) the added work thrown upon the kidneys in the elimination of increased waste material supplied by the fetal and uterine circulation; (2) a reflex impression, incident to the idiosyncrasies of pregnancy, which is made in certain cases upon the renal nerve-centres, increasing the excretory activity to an abnormal degree; and (3) a rise of arterial blood pressure which is commonly observed, and sometimes in an aggravated measure, during gestation, in

which the renal system must largely participate and from which it is most apt to suffer. This latter influence is measurably increased, by mechanical means, during parturition. We can well imagine that the degree of arterial blood pressure during each labor-pain must be excessive, and would easily aggravate a pre-existing nephpritic lesion. I doubt not that these influences, when operative in extreme measure, may and do suffice to occasion an actual parenchymatous nephritis which can, and sometimes does, become chronic in its character. Leishman, Lusk, Galabin and others have latterly realized, at any rate, that such a thing is not only possible but sometimes of positive occurrence. Of course, on the other hand, it must be conceded that many women become pregnant who suffer, prior to the fact, with nephritic disease, and this fact undoubtedly accounts for a certain proportion of these serious and persistent cases. But even this consideration, real as it is, does not suffice to dispose of the entire number of instances in which these sequelæ occur. Hoffmeier has cited cases of nephritis which have had an unquestionable origin in pregnancy, and which do not abate after parturition has removed the exciting cause. Bartholow, too, declared that parenchymatous renal disease in pregnancy "not unfrequently becomes a permanent malady, pursuing an independent course,"—a course which is essentially chronic.

One explanation of the false conclusion at which the profession at large has arrived is to be found, I think, in the fact that a confusion of ideas often exists regarding the differentiation of the various forms of renal or, so called, Bright's disease. Galabin, for instance, admits the chronicity of the complaint, following pregnancy, but suggests that "its tendency seems to be toward the production of the granular kidney of interstitial nephritis."

Now, the Bright's disease of pregnancy is of the acute parenchymatous form, which does not originate the inter-

stitial disease, but rather the large white kidney of chronic parenchymatous nephritis. It seems to me that a wide etiological distinction is to be drawn between these two chronic forms. The one is a disease of maturity or old age; the other, more generally, of youth. The interstitial type depends, I believe, upon perverted nutrition, and is a trophic disease operating, probably, through the nerve-centres. The parenchymatous form is essentially a disease dependent upon inflammatory conditions, or those which result from a disturbed balance of the circulations. And that chronic parenchymatous nephritis does result from the acute disease of pregnancy the meagre pathological and the more extensive clinical evidence we possess goes to prove. So much, then, for the fact of the persistence of renal disease begun in pregnancy. The value of these facts to the gynæcologist in particular I shall endeavor, practically, to point out.

Through the courtesy of the chairman of this section I am permitted to cite a case which, clinically, illustrates the gynæcological importance of nephritis as a relic of parturition, and which is possessed of other features, unrelated to this subject, which are of a most important bearing.

Mrs. X. Y., aged 23. Primipara; child two years old. History: General health, prior to marriage, excellent; had suffered no abortion or miscarriage during married life; labor had been rapid, and to that event existing troubles were traced. Ever since the patient had complained of sense of weight and great soreness in and about the uterus, of severe neuralgic pain in the right ovarian region, and of inability to walk. From her former weight of 130 ponnds she had depreciated to the present point of 75 pounds. Inquiry, subsequent to the facts which are to follow, brought out the information that some renal symptoms had complicated her pregnancy.

Careful examination revealed a double complete laceration of the cervix down to the vaginal junction on both sides, a retroversion of the uterus, prolapse of the left ovary and extensive cellulitis. After a good course of preparatory treatment Dr. French, on May 14th, with the assistance of Dr. Hunter and the writer, etherized the patient and performed trachydoraphy. She rallied well from the operation.

May 15th she complained of some abdominal distress, the temperature rose rapidly to 104° F., and the pulse became weak and frequent. Fifteen grains of quinine was ordered and hot vaginal irrigation.

May 16th, witnessed no improvement. The heart's action remained feeble, the temperature little reduced, the pulse was rapid and bad in qualily, and vomiting occurred.

The next day, May 17th, A. M., unfavorable symptoms continued. Attention was directed to the urine. The application of heat to it exhibited very large quantities of albumen. Subsequent microscopical examination showed entire absence of blood, and of hemorrhage or hyaline casts, but revealed the presence of a large number of coarse granular casts. The urine had not been examined before the operation.

May 17th, P. M. The abdomen had become swollen and tympanitic; occasional delirium was noted; vomiting continued; little pain was experienced.

May 18th. Dr. French held a consultation with Drs. Hunter, Abbott and Ames. Prior symptoms decidedly aggravated; pulse over 200; countenance hippocratic; much jactitation; decubitus not especially pathognomonic of peritonitis.

May 19th. Condition unaltered, save that the mind remained clear throughout the day. Repeated temporary loss of vision occured; patient became gradually comatose half an hour before death, which took place at 6.30 P. M. No autopsy was made.

The very unusual termination of this ordinarily safe attempt to repair the cervix is a fact worthy of notice. The complicating factors in the case which induced death are the more remarkable. The occurrence of a septicæmic peritonitis it is difficult to understand, while the fact is unquestioned. But the strongest element in the case, as a determining cause of death, is believed to be the existence, unrecognized before the operation, of a chronic parenchymatous nephritis dating back, undoubtedly, to her pregnancy and continuing, in a subdued form, until revealed by the influences incident to the operation. How far it could have to do with the development of the peritonitis it is difficult to say, but it had certainly an overwhelming influence upon its course and probably determined its fatality.

Let me emphasize, briefly, the facts exhibited by the microscopical examination of the urine, viz.: the presence of coarse granular casts, and the entire absence of blood, of fresh epithelium and of hemorrhagic or hyaline casts; facts all indicative of the absence of acute inflammation and the presence of marked chronic disease.

Two questions arise: (1.) Should the existence of a chronic nephritis, if discovered, be regarded as a warning to abstain from so ordinary safe an operation as trachylorrhaphy? (2.) Was the operation responsible, in this case, for the effect upon this old nephritic inflammation and its probably disastrous results?

To the first of these questions, I should answer, no. I cannot see why such a condition should necessarily prejudice the success of the operation, or why it should be aggravated by its simple performance. To the second, I should say that the operative procedure is not, *in itself*, to be charged with this unfortunate result so far as the kidneys are concerned.

I believe that in this case—indeed in every such instance—an incident of the operation is responsible for the

effect, viz., *the administration of ether*. Emmett was the first, I think, to point out the influence of ether, by inhalation, upon even the healthy kidneys It is, at all times, the cause of an active hyperæmia of those organs which, in the event of disease, is of serious moment and may well account for even so grave a disturbance as this case presents to us.

We observe the precaution of examining the heart in every case before the administration of chloroform, and we should, I believe, follow a similar rule in examining the urine before the use of ether. If such an operation can be conducted without an anæsthetic, or under the influence of any other and safer drug, I do not think that the existence of a moderate degree of chronic nephritis need preclude it performance; but never, for any purpose, should the inhalation of ether be begun before the possibility of the presence of such a lesion has been ascertained.

REPORT OF A CASE OF OVARIOTOMY.

BY J. W. BELL, M. D.

Perhaps an apology should be offered for intruding upon the valuable time of this section in reporting a case of ovariotomy. My only excuse for so doing is the fact that no two cases present the same picture as regards pathology, symptoms, or complications met with during the course of or at the time of operating.

The history of the case in brief is as follows:

Mrs. F., Scandinavian, age 23 years. Father died in the army, mother living; an invalid for many years; suffers from uterine and ovarian diseases. Mrs. F. always had fair health until the past three years. She menstru-

ated first at 11, married at 18. Has always suffered from dysmenorrhea. Mother of two children; one miscarriage; oldest child 4, youngest 22 months.

She first noticed an enlargement, accompanied by pain, in the region of the right ovary three years ago. This continued to enlarge gradually for some four or five months, when she ceased to menstruate, pregnancy having occurred. She noticed the enlargement or tumor in the right side grew very rapidly. Before she was four months advanced in pregnancy she became as large as one at term. She suffered greatly from gastric and nervous disorders throughout her pregnancy. During the latter third of her pregnancy she became so large as to be unable to move around the room, sufferd much from dyspnœa and syncope.

She was attended in labor by a midwife, who, noticing her extreme size, notified her that she was pregnant with twins. However, her labor was normal, with the exception of being what is termed a "dry labor." She noticed but little change in size following delivery, indicating that the tumor had grown rapidly during the period of pregnancy. For some months after it appeared stationary.

About April 1st, 1886, she consulted me. On examination the tumor proved to be an ovarian cyst, springing apparently from the right ovary and believed to be unilocular. An operation advised and consented to. The patient being in good condition, arrangements were made for an immediate operation at the home of the patient's parents.

On the afternoon of April 9th, 1886, assisted by Drs. Van Cleve and Friedlander, I removed the tumor; using the spray, and as nearly as possible strict antisepsis throughout. The usual abdominal incision was made, through a large amount of adipose tissue, the peritoneum opened. No adhesions to abdominal walls, or at any point except in Douglas' pouch. The cyst was emptied,

proving to be a multilocular cyst springing from the right ovary, the pedicle being extremely broad and vascular, attached along the entire length of right broad ligament; fundus of uterus beyond the median line, measuring fully four inches. With this broad pedicle and the great diversity of opinions held by operators regarding the case and management of the same, it became a question as to the best and safest plan in this particular case—how to secure safely this broad and extremely vascular pedicle. We concluded to use the "cobbler's stitch;" having secured it thus, a firm catgut ligature was thrown around the entire pedicle; this last ligature being an additional safeguard, which I have never seen used or described in reports of cases. Having cleansed the peritoneum carefully, the wound was closed with deep wire and superficial silk sutures, a rubber drainage tube used, and wound dressed.

The tumor weighed about thirty pounds. There was but little shock followed. She recovered from the anæsthetic with an irritable cough, which continued for two days, being the only complication that caused any inconvenience. No vomiting or other untoward symptom made its appearance. The highest axillary temperature being 100½. Her food consisted of milk and liquid beef peptonoids, principally the latter. She made a good recovery, and at the end of the sixth week returned to her home in the country.

I would ask the members of the Society whether it has been their observation that pregnancy causes a more rapid growth of ovarian cysts.

AN OVARIOTOMY.

BY FRANKLIN STAPLES, M. D.

Mrs. K., German, aged 62, had not menstruated for fifteen years; somewhat emaciated but in fair health; had known of existence of tumor about six months. The tumor was large, with what seemed to be much solid substance in the left lower part. I supposed the case to be something other than a cystic tumor of the ovary. She had suffered considerable pain in the region of the apparently solid part.

Operation July 1, 1885, by long median incision. Evacuated three large cysts, and was able to remove the mass. The tumor was found to be an ordinary ovarian oligocyst. The part that I had mistaken for a solid portion was simply a mass of small cysts, from the size of a bean to that of a hickory nut. This mass constituted about one-fourth the weight of the whole, which was from 25 to 30 lbs. There were no adhesions and the pedicle was long and flat. The pedicle was secured in four sections by a silk braid ligature, cut short and dropped in. I used boiled water, slightly carbolized; made thirteen silk sutures, dressed with gauze, macintosh and bandage.

The patient had good nursing; was in a clean but rather small room in a house situated on the south side of a steep hill; the weather was intensely hot; the pulse never got above 106 and the temperature never above 100¾, and the recovery was rapid and complete.

FIBROID TUMOR OF THE WALLS OF THE UTERUS TREATED WITH HYPODERMIC INJECTIONS OF ERGOTINE.

BY W. H. PRATT, M. D.

Mrs. E., age 28, was seen in April. She had menstruated irregularly for two years and had flowed constantly for three months, and was greatly debiliated, stomach irritable, retaining little food. On examination a fibroid tumor was found involving the walls of the right side of a much enlarged uterus. The abdomen was extended to the degree of a six month's pregnancy, more on the right side. Opiates to relieve pain and mineral tonics were given. In addition the only treatment was ergotine given hypodermically in the front and inner side of the thighs, daily for two weeks, and every other day thereafter.

At the end of first month vomiting had ceased and she had some appetite. Flowing continued, but diminished in quantity. After three month's treatment patient was much improved in every respect; appetite good, flowing stopped, and tumor diminished. At end of fourth month tumor was diminished one-half, and she had her menses. Continued treatment one year. At eighteenth month after commencing treatment she became pregnant and aborted at fourth month. At end of second year she was found to be apparently perfectly well.

OPHTHALMOLOGY AND OTOLOGY.

CORNELIUS WILLIAMS, M. D., CHAIRMAN.

REPORT OF CHAIRMAN.

Mr. President and Gentlemen:

In submitting my report I am aware that much has been omitted which would have added value to this paper as a *resume* of the progress of ophthalmology and otology since our last meeting. But with the belief that a brief account of some of the more salient features, with comments, would be better borne by the society, than an exhaustive review, I ask your attention first to

TRACHOMA

and some more recent methods of its treatment.

Trachoma, as you are well aware, is a disease of the lids, which, because of its obstinacy, the ravages worked by it, and the extreme difficulty of carrying the old methods of treatment to a successful conclusion, was for many years the *bete noir* of the profession.

A disease which has led to the destruction of more eyes than any other ocular affection, it is not to be wondered at that the proposed remedies have been legion. The Jequirity bean, however, first introduced to the profession by Dr. Wecker of Paris, is the remedy which succeeds when all others fail. Another year of experience has only the more firmly fixed the confidence of the profession, those of them who have fairly tried it, in

Jecquerity as a remedy for obstinate trachoma, or granular conjunctivitis, with attendant pannus, etc.

The remedy must not be abused. Its use requires judgment and fine discrimination, as well as some courage. Its use is not without some danger, and there are not wanting records of eyes lost by its employment. The employment of any remedy known to medicine, which is potent for good, may under certain circumstances lead to most unfavorable results,

The infusion of Jequirity most commonly employed, is made by bruising the dried bean and mascerating for twelve hours in cold water, adding then an equal quantity of boiling water, allowing the whole to stand for twelve hours longer, when it is ready for use. The strength of the infusion oftenest used is one per cent., though as high as five and ten per cent are employed.

The class of cases to which the remedy is eminently adapted is characterized by the presence of *distinct* granulations or trachoma bodies. The *diffuse* infiltration with hyperplasia of conjunctival and subconjunctival tissue without prominent elevations is not favorably influenced, as a rule, by the Jequerity inflammation. Corneal ulceration or abscess is a contra-indication to its employment.

Profuse secretion must first be checked, full mydriasis must be procured, and then, even though the cornea be infiltrated, I think the use of Jequerity is perfectly safe. The number of applications and the length of time which they are to be continued must be left to the discretion of the physician. It is desired to obtain an acute croupous inflammation of the palpebral conjunctiva with the formation of a pseudo membrane. The time required is generally about three days, and the applications of the infusion from three to twenty. I prepare the patient as for an operation, and conduct the after treatment with great care. Upon attention to details depends success or failure.

My friend, Dr. A. Alt of St. Louis, has recently prepared and practised a modified form of the Jequerity cure, which consists in the application of small portions of the dried powder of Jequerity bean. In this way a limited inflammation is excited, which may be repeated several times if necessary, and in appropriate cases as perfect a cure may be obtained as by the use of the infusion, with the advantage that the patient is not laid up in bed.

Dr. Alt has watched the process of metamorphosis in the trachoma granule, and has proved that its disappearance is due entirely to epithelial and cellular disintegration. Very great care must be used in the employment of the Jequerity in substance: if too much be used, or it be allowed to remain too long in contact with the tissue, an alarming inflammation may be excited and the loss of an eye might result.

The bacteriologists, when Jequerity first came into use, claimed that its specific action depended upon the presence of microscopic organisms generated in the infusion. Sattler was the principal advocate of this theory, which was ably defended in a thesis read before the Ramsey County Medical Society by Dr. Carl Schulin. This proposition now has few defenders and Dr. Schulin, I think, no longer adheres to it.

Excision of the retro-tarsal folds is another remedy for trachoma which has lately gained favor in some quarters. The operation so modifies the nutrition of the conjunctiva that the trachomatous granules are said to disappear very rapidly, besides this the distressing corneal symptoms are almost immediately relieved.

The opponents of this procedure, however, claim that irreparable damage is done to the lid, interfering with its function to such an extent as to produce ptosis and great limitation of motion, preventing complete closure of the eye, etc. Hotz of Chicago, an active opponent of ex-

cision, proposes to evacuate the trachomatous follicles by squeezing them. This he does with the thumb and finger, and with a forcep adapted to this purpose. (See Archives Ophthalmology for January, 1886.) Hotz's operation is very painful, but he claims success equal to that obtained by any other method.

CORNEA.

Violent and destructive corneal inflammations, sometimes lead to practical if not total loss of an eye, and within a few days. The form of rapid corneal necrosis known as serpent ulcer, or a similar necrotic process, often succeeds injuries to the cornea, whether inflicted accidentally or at the hands of a surgeon.

The theory that this process is due to inoculation with bacteria, has steadily gained ground, so that now but five oppose it. One of the lastest converts to this theory, which he had long and stoutly combatted, is H. Knapp of New York. (See Experiments on the Action of Bacteria in Eye Operations, by H. Knapp, M. D., Archives Ophthalmology for March, 1886, page 25.)

The treatment which best succeeds in this most formidable disease, is that one which most effectually destroys the micro-organism, and no other agent yet tried has succeded so well as the actual cautery. The application of glowing metal to the eye may appear heroic treatment, and in one sense it is, but it is not so difficult or dangerous as it may seem.

A piece of platinum wire, flatened at the end, and a spirit lamp is all that is required. The application is not very painful, since much of the tissue touched is dead, and the dread which patients have of the proceeding is not nearly so great as I had anticipated. I have often applied the actual cautery to the eye with and without cocaine, with but little objection on the part of the patient. I think it better to give ether than to use cocaine

in necrosis of the cornea, for the reason that cocaine impairs the nutrition of the corneal tissue and in this way may favor the process of ulceration.

The platinum, heated to a white heat, is carried as quickly as possible to the ulcer, and the dead tissue which covers its floor should be burned to a crisp, as well as the infiltrated margins. With the ordinary apparatus this is only accomplished by repeated applications of the wire, and until this is done the operator should not desist, since the procedure may be otherwise fruitless. The conjunctival sac is then thoroughly washed with a warm solution of boracic acid, ten grains or more to the ounce, and the eye bandaged. When enough has been done and the operation is to succeed, the pain from the disease, which had continued almost without interruption, is much lessened. The reaction from the cauterization is not excessive, and is not to be feared.

At the time of writing this I have a patient, a young woman of 17, at the hospital, upon whose eye I used the actual cautery with the happiest result. An ulceration, which had covercd two-thirds of the cornea and threatened its entire destruction, was at once arrested, and a useful eye will be preserved.

Accommodation and Refraction.

No class of cases with which the oculist has to deal gives so much trouble and so little satisfaction as certain cases of asthenopia, weak sight, not from any organic lesion of the media or the apparatus of the eye, but functional insufficiency not dependent upon any error of refraction or demonstrable failure of the ocular muscles.

The patients of this class have a facial expression which is distinctive, while not easily described. They may be recognized afar off. The complaint is generally inability to read or use the eyes for any length of time without pain, lachrymation, etc. An examination reveals that the

refraction is normal, the vision is often above the average. There is no derangement of mobility or of accommodation. The eye is to all appearances absolutely normal, yet this patient actually suffers very much, and may even be really unable to use the eyes for a single minute to read or write without feeling pain or discomfort for the remainder of the day. The callow practitioner in opthalmology is almost sure to assault this patient with glasses. He is very apt to keep the patient's eyes fully under the influence of atropia for a couple of weeks and then he prescribes a glass, which may be a very compound glass, the selling of which maketh the optician rich for a time. There is then something in the form of a subsidy paid the practitioner and the patient is let go, but he cannot see with his glasses.

There is in fact a very serious trouble with this asthenopes eyes, but it doesn't originate there, and treatment of the eye cannot relieve the eye symptoms. The practitioner has failed to discover this fact and he has done the patient actual harm. The lesion which is producing the eye trouble is distant from the eye; it may be uterine, it may be nasal, it is often difficult to find it and as difficult to remove it.

A paper by E. Gruening of New York, (Med. Record, Jan. 30th, 1886,) deals especially with a class of reflex ocular affections due to a diseased condition of the nasal mucous membrane, and his experience would seem to prove that without doubt certain alterations of that membrane do give rise to annoying ocular symptoms which are promptly relieved by efficient treatment directed to the nasal affection. Gruening's cases number some two hundred. The kinds of nasal lesion were those usually found in rhinitis, hypertrophy of the mucous membrane being most constant. The ocular symptoms he summarizes as, burning and smarting of the lids and eyes, inabil-

ity to fix an object in ordinary daylight, increased vascularity of the conjunctiva and lachrymation.

The eyes had in many cases been treated for a long time with no benefit whatever, a careful examination showed them to be in sound condition with no error of refraction.

The symptoms complained of disappeared in some cases at once with proper treatment of the nasal difficulty, even though the nasal condition had excited no inconvenience otherwise than to the eyes. It can be readily understood that many cases of asthenopia for which glasses are given, but which glasses do not relieve, really belong to the reflex group, be the origin of the neurosis, the nasal mucous membrane or at some more distant part.

The very prevalent practice of prescribing glasses for every person who complains of any form of ocular trouble has lately received a merited rebuke at the hands of Dr. D. B. St. John Roosa, in a paper read before the Academy of Medicine in New York (in March, 1886.) No one can know better than the competent opthalmologist that immeasurable benefit is conferred upon the patient by the proper adjustment of a glass to correct an anomaly of refraction which is abnormal. It should be borne in mind, however, that only in a very small percentage of the total number of those who have astigmatism of a higher degree than 1-60 does correction afford comfort; much less is the percentage of chronic asthenopes relieved by the correction of a low grade of corneal asymetry.

Transplantation of the Eye.

Within the last year attempts have been made to transplant the human eye. Experiments have been made with rabbits also, but as yet no degree of success has attended these ventures sufficient to establish the operation as a legitimate one. That successful transplantation will one day be accomplished there seems good reason to believe

—successful, of course, only so far as attachment and nutrition are concerned. It is presumably impossible that such an eye should acquire any power of vision in its new relation. An interesting resume of the history of the operation, together with the result of a number of personal experiments, is given by Dr. Chas. H. May in the Medical Record for May 29th, 1886.

Evisceration and Enucleation.

The operation of evisceration of the eyeball as a substitute for excision grows in favor. It is generally agreed that the operation may not take the place of excision entirely, even when there is no suspicion of malignant disease. It is held that evisceration does not remove the danger of sympathetic inflammation so thoroughly as excision. The operation is, however, too young to judge as to that, since those cases in which sympathetic inflammation resulted after evisceration might also have gone on to that end if enucleation had been practiced.

Netleship.

London Lancet, February 6, 1886, reports a death from purulent meningitis after excision of the eye. He arranges a table of all the cases known to him, their number, with his one, making thirty. Of the thirty, twenty were fatal. It will be remembered that it was this accident which induced Graefe to recommend evisceration. I am of the opinion that evisceration will continue to grow in favor.

Successful photographs of portions of the fundas of the living human eye have recently been made by Mr. W. T. Jackman and Mr. J. D. Webster, of England. Much interest has always been attached to attempts at photographing the interior of the living eye, and important results may flow from the accomplishment of these gentlemen. (Photographic News, May 7, 1886.)

EAR.

Any operation or method of treatment which shall succeed in permanently bettering the hearing of those deaf from chronic aural catarrh merits attention. Dr. W. H. Bates of New York, has lately proposed to ameliorate the condition of this class, by a series of multiple incisions in the drum membrane. Dr. Bates' results, while very encouraging, are not more so than those which had been obtained by Schwartze sometime before, by an almost identical procedure. Schwartze's results were not permanent.

HEADACHES DUE TO REFRACTIVE ERRORS.

BY FRANK ALLPORT, M. D.

It is but a few years since a large proportion of patients, suffering from headaches, were compelled to submit to them graciously as possible, and to regular but ineffectual doses of drugs. These headaches were due to some error of refraction. The literature upon this subject is exceedingly scanty, and I know of no book in which can be found more than a mere mention of this important subject. You will, therefore, pardon me if, in my endeavor to make myself understood, I mention some facts with which you are quite familiar.

In a normal or emmetropic eye, the rays which proceed from any object upon which we may gaze, is brought to a focus exactly on the retina. The distance between the anterior and posterior extremities of the eye is of the proper distance. Any deviation from this is an

abnormal or ametropic condition, and will, sooner or later, be followed by unfortunate results.

In myopia the antero-posterior axis of the eyeball is too long, and the focus from objects falls in front of the retina. In hypermetropia it is too short, and the focus falls behind the retina. Allow me to remind you that, surrounding the lens on all portions of its circumference, is the ciliary muscle, which, by its action upon the semi-solid crystalline lens, performs the important function of accommodation. Wishing to look off at a distance, this muscle allows the lens to decrease in its convexity, and a near point being the object of our scrunity, this muscle forces the lens to an increased convexity.

Were it not for this internal and ever-ready elasticity of the eye, produced by the action of the muscle of accommodation on the crystalline lens, our range of vision must be very circumscribed. It is this accommodative power of the eye which enables a person to see distinctly, even though a marked refractive difficulty exists. For instance, in hypermetropia the axis of the eyeball, being too short, objects are formed behind the retina, and, without the intervention of accommodation, we could obtain but a diffused image of objects. But the ciliary muscle comes to the assistance, keeps the lens in a state of increased convexity and brings objects to a focus exactly in the retina. This result, however, is accomplished by an undue and unnatural effort, and the time will come when this strain must cease, the muscles not only refusing to do more than its share of work, but, from exhaustion, being for a time at least rendered practically useless.

This is like a man trying to do twenty hours work in twenty-four. For a time, especially if he be robust, this may be accomplished, but little by little his vital energies will diminish and he will at least become a physical wreck. This conflict between an incorrect antero-posterior diameter of the eye and accommodation, is still more

detrimental in its results when a person suffers from astigmatism, and there is more than one degree of refractive error in one eye.

To illustrate: In compound hypermetropic astigmatism there are two degrees of hypermetropia in one eye. For instance the vertical meridian may be hypermetropic to the extent of one thirty-sixth, and the horizontal meridian to the extent of one eighteenth. This error will require a glass ground so that one side of it corrects the former, and the other the latter meridian. Possibly an eye may possess the curious anomaly of being myopic in one, and hypermetropic in the other meridian. This will require a still more complicated glass, viz.: one that is concave in one axis and convex in the other. This case would be termed one of mixed astigmatism.

In these astigmatic cases the accommodation is continually making an effort, which must prove futile, to correct the refactive error in both meridians. It is for this reason astigmatic cases are the first to succumb to ciliary weakness, and are the most enthusiastic disciples of properly adjusted glasses. Ciliary weakness is especially apt to be noticed in patients having refractive errors after recovery from a debilitating illness, especially if carelessness has been observed in the use of the eyes during convalescence. Typhoid fever, and also cases of labor, are apt to be followed by these symptoms, especially if copious hemorrhages have occurred in the latter case.

You have doubtless had patients who, during convalescence, complained of partial or total inability to use the eyes. This was doubtless due to an exhausted condition of the ciliary muscle, and a consequent lack or loss of accommodation. Such symptoms are asthenopic, and asthenopia is a condition of the eyes where there is an inability to use them without fatigue. Asthenopia is, therefore, not a disease but a symptom of a disease.

A tired feeling in the eyes after use, sense of heaviness

and possibly pain, blurring and running together of print or needle-work, headaches of different varieties, but usually in the anterior portion of the head, are all indications of weakness of accommodation—are found almost entirely in persons having refractive error, and are termed asthenopic symptoms. Distressing and persistent headaches are among the most annoying results of error in refraction. I sometimes think oculists cure more headaches than all the other physicians aggregated, not even excepting our esteemed friends the gynæcologists. My experience is not unlike other oculists in having been able to cure many cases of inveterate and persistent headaches by the proper adjustment of glasses. Allow me to cite a few cases, and I will preface them by stating that in every case the trouble was of a prolonged and decided nature, and of so grave an importance in the patients' lives that the cure entirely altered the complexion of many phases of their existence. The following cases are all of sufficiently remote occurrence to establish the permanency of the cure.

Miss A. B., aged 19 years. Very much emaciated; poor general health; no appetite, and is literally an invalid from severe and incessant headaches. This trouble has incapacitated her from most forms of recreation and instruction. Although of a naturally studious and intellectual mind, reading and study were practically abandoned, as they always increased the severity of her headache. She was sent every summer to the lake, where out-door life seemed to slightly better her condition, although she was ever, at best, an invalid and source of great anxiety to her parents. She was subjected to a great variety of drugs and different treatments, but entirely without avail. After years of this suffering she came for an examination of her eyes. Well marked hypermetropia to the extent of +16 was diagnosed. She was fitted with glasses, and it is no personal credit to say that

within one week from the time glasses were adjusted she was absolutely free from headache, and to this time has had no recurrence. The whole tenor of this young lady's life has changed. Her appetite having returned, she has gained in flesh and strength. She has gone to boarding school, and stands high in her classes.

Mr. F. C., architect; aged about 33 years. Several years ago he gradually commenced to have asthenopic symptoms, and the attacks increased in severity until he was almost entirely deprived of the use of his eyes. Although a very successful architect, he entertained serious thoughts of abandoning his business. His headaches were violent and frequent, and necessitated a discontinuance of all work. A peculiarity of this case lay in the fact that, while the pain would occasionally be felt in the frontal portion of the head, it was usually concentrated in the back portion, in the region of the occipital protuberance. I found, upon an examination of this case, hypermetropia +30, and since its correction patient has experienced perfect ease. To illustrate the direct connection between cause and effect, I will state that reading or working without his glasses, even for a few moments, will cause a recurrence of the old pain in the back of the head.

Dr. E. G. F., 35 years, had well marked asthenopic symptoms and had been, during several years, a severe sufferer from sick headaches. Two or three times a week he had been compelled to abandon business and seek a darkened room and sleep, from which he usually obtained relief. Examination disclosed the presence of a compound hypermetropic astigmatism, and glasses have also in his case entirely removed these distressing attacks.

Mrs. G. R. N., age 45, had for several years been the victim of excruciating attacks of neuralgia. The attacks were quite frequent, and she was compelled to remain in bed until relieved, which relief however was always obtained by means of opiates. The pain always commened in

the left supra-orbital nerve as it passes through the supra-orbital notch, and then extended to the eye, the brow, the left cheek, and finally involved both sides of the scalp and face. She had noticed, for many years, that she was "near-sighted." An examination of this case disclosed compound myopic astigmatism, moved forward on the left side. This refractive error was corrected two years ago and the lady has suffered from but one attack since that date, which occurred soon after the adjustment of glasses.

Mr. A. E. H. said he had no faith that glasses could relieve him, as he had never experienced the slightest difficulty with his eyes. However, having tested everything but glasses, he concluded to give them a trial. This gentleman was subject to severe and protracted attacks of neuralgia about once a week, at irregular periods. The pain usually started in the scalp, on either side, and finally involved the major portion of the head. Relief was at last only secured by means of hypodermic injections of morphine, and he was for several hours left in an exceedingly exhausted condition.

When at my office his suffering was severe, and, as an ophthalmoscopic examination had disclosed an hypermetropia, I injected into the eye a ten gr. solution of atropia, believing that, by a paralysis of the ciliary muscle, I could arrive at a tolerably accurate conclusion whether the pain originated in the ciliary region. In a half hour my patient was free of pain. At a subsequent examination I found a latent hypermetropia of +24, which, having been corrected by glasses, has, with occasional exceptions, relieved him of these attacks.

The cases I have cited are not exceptional or picked instances. I could mention many more, but enough has been rehearsed to point to the exceeding possibility of various headaches and neuralgias being excited by ex-

hausted and irritable ciliary nerves and muscles. It is, of course, an undeniable fact that many people having refractive errors have neither headaches or neuralgias, but it is equally undeniable that we contract severe colds without a consequent pneumonia or rheumatism. Many workmen lie down to rest on the damp ground and do not contract myelitis, and, we cannot, therefore, form direct conclusions from the fact that all who have unmistakable refractive errors do not suffer from headaches.

DETACHMENT OF THE RETINA.

BY DR. CARL SCHULIN, ST. PAUL.

I beg to show you a case of detachment of the retina in both eyes, treated with fair success, which presents different features of interest.

Mr. H. Conway, a strong man of 30 years, and always enjoyed good health until about ten years ago, when living in Canada, he had for a couple of months the so-called slow fever, a kind of typhus ambulans, and about six years ago he had some pain in the right knee, but without any swelling or fever. There are no marks of any diathesis, especially neither rheumatism nor syphilis.

Three years and a half ago his sight began to fail, first in the left eye, then also in the right one. He first helped himself with glasses, but soon they did him no more good. He then consulted a prominent physician of Quebec, who kept him for some time under mercurial treatment, but without any success. Thereafter he was treated by different physicians with drops and salves, also without success. Last fall he went over to the old country and sought the help of the Royal London Ophthalmic Hospital, in Moorfields. Here they made the diagnosis of detachment of

the retina. They punctured the sclera, put on a compression bandage, and kept him for thirty-three days on his back in bed. They did not give him any mercury. This treatment also was without success.

When he came to me, on the 20th of April, I found his eyes in the following condition: He could see from both eyes only with the outside oblique rays; with the right eye he was able to count fingers, with the left one he could only see the general outlines of my body. With neither of his eyes could he see anything straight on or to the inside.

With the ophthalmoscope I found in both eyes detachment of the temporal side of the retina. The refraction was at the papilla, and at the inside of the eyeball emmetropic, in the right eye slightly myopic, at the temporal side it was hypermetropic (+7 D.) The blood vessels at the detachments were very tortuous. He complained much of a continuous flickering before his eyes.

As he had been treated with puncture of the sclera alone and with mercury alone without success, I resolved to try a combination of both, and to give the mercury after the method of Morano of Naples, recommended in such cases.

I began treatment on the 21st of April by passing a division-needle at the outside of both eyes near the equator of the bulbus through the conjunctiva and the sclera. Then I dilated a little the wound in the meridianal direction. I did not perforate the retina, because I thought a good many of the failures observed, especially by French authors, were due to the perforation of the retina. They found that the vision did not return, although the retina went back to its normal attachment. This may be explained by a deleterious effect of the contact of the serous fluid with the sheetless nervous fibres at the inside of the retina, which is avoided by not perforating the retina.

After this little operation I put in some atropia, put on

a compression bandage and gave calomel with opium, one-fourth of a gr. each, every two hours. After twenty-four hours he had a well developed salivation and all around a slight pericorneal injection. The pericorneal injection had nothing to do with the little operation, but is a symptom of iridochoroidities which Morano observed also after the use of calomel alone in this form.

I stopped the calomel, but continued the atropia and the compressions. At the evening of the 24th, three days after the beginning of the treatment, the sight was restored in both eyes. Of course it was very weak yet, but he could see the general outlines of things all around. On the 26th I gave him two doses of iodide and bromide of potassium, containing ten gr. each. During the night of the 26th he had very much salivation and some bad pain in both jaws and all over the head. But at the morning of the 27th all this was over, and his sight was so much improved that he could count fingers in any direction with both eyes.

At the same day I tested his eyes for the perception of colors, after Holmgren's method, and found that he could distinguish all colors with the right eye. But the left eye gave a very peculiar result. He was here totally color blind, with the exception of one small place, where he could see blue and yellow. This place was that part of the retina which had not been detached. The outlines of this place were so sharp, that when I held a skein of yellow wool in a certain direction before his eye, he saw one part of it yellow and the rest white.

Color blindness, not congenital, but acquired, has been observed by different authors, especially by Galozowski, after different eye-diseases, also after detachment of the retina. But as far as I know there has never been observed a case of an eye which is color blind only in a part of the retina. As far as I know there has never been made a microscopical examination of a color blind eye. The

chances to get such an eye are very rare, and there is, it seems to me, also a certain prejudice which makes the people think that nothing would be discovered by such an examination. I never had a chance to examine a color blind eye with the microscope. Although Mr. Conway, I am sure, is willing to do any favor possible to me, I cannot expect him to let me have one of his eyes. But by theoretical reasons I am convinced that with the microscope we would find there an important change.

Max Schultze, whose name is familiar to all of you by his investigations about the retina, suggested there might be some difference in the function of the cones and the rods; the perception of colors might be confined to the cones, and the rods might only have the ability to distinguish light and dark. If this presumption, which is supported by some very strong reasons, is true, then a retina with diseased cones is color blind just as well as the retina of some night birds which have no cones at all.

If my presumption that disease of the cones would be the cause of the acquired color blindness and some disturbance of the development would be the cause of the so-called congenital color blindness, if this presumption should ever be corroborated by a direct microscopical examination, then also the contest between Young, Helmholtz's and Hering's theories of the perception of colors would be decided and this would be in favor of Hering. Black and white would be established as real sensations of colors mediated by the rods; besides we should want two kinds of cones, one for red and green, and another one for blue and yellow. By combination of these six sensations any sensation of color might be explained.

Those of you who followed the more recent investigations about the peripheric terminations of the nervous fibres, will allow that the difference of the sensations is corresponding not to a difference in the nervous fibres, but to one in the terminations. The existence of two

obviously different kinds of terminations of the optic nerve in the retina, contains such a hint for a theory of the perception of colors, that it is rather astonishing that it is overlooked in such a way.

From the 27th of April the sight of Mr. Conway improved from day to day, until, in the middle of May, he could read Jaeger No. 10. Then it stopped and remained so until now. The only change which occurred since, is that he is able to see also a little green and red with that part of the retina which had not been detached.

Of interest is the change in the refraction of his eye. The refraction has not changed much at the detached places, so that it is probable that some detachment is still existing. But at the papilla, and inside where the refraction was emmetropic or even myopic, it became on both eyes hypermetropic about 4 D. While the posterior chamber had, before the treatment, more the form of a pear, it is now more like a ball. Its axis became shorter, the eye flattened, probably by the compression bandage.

A CASE OF DOUBLE GLIOMA—DEATH FROM BRAIN COMPLICATIONS.

The infrequency of glioma in practice is my excuse for reporting the following case to the Society. It is true, one engaged in a large special practice will have seen quite a number of these cases; but to the general practitioner glioma of the retina will always remain a rarity.

CASE.—J. H., male, aged two years. Was brought to me by his parents Sept. 20th, 1885. They first noticed something wrong with the child's eye two weeks before; and as the mother expressed it, the eye for the last month "looked like a cat's eye." Three weeks before bringing

the case to me the eye of the child was slightly inflamed, the upper lid somewhat swollen, and the child has been fretful for some days.

St. prs., general condition is good; lids moderately swollen and œdematous, conjunctiva injected, movements of the globe slightly restricted, exophthalmos of one or two m.m., cornea normal, anterior chamber shallow, pupil dilated and immovable, lens transparent and pressed forward. The pupil shows a yellowish white reflex which is plainly seen with the unaided eye. By oblique illumination upon the anterior surface of the tumor can be seen several blood vessels, T. + 1.

Diagnosis: Glioma of the retina. Enucleation advised.

Sept. 16, 1886. The eye was enucleated in the usual manner, and the optic nerve was divided as far from the globe as possible, Drs. Ayer and Dodge assisting. Stump healed kindly; no return of the neoplasm in the orbit of the eye operated.

The following notes are made from information received from Dr. Ayer, of Le Sueur, Minnesota:

I was consulted about two months after the operation, by Mr. Hinze, in regard to the child you operated. In the right eye can be seen a yellowish white reflex similar to the reflex in the eye operated in September. This condition remained for some weeks, when the child was attacked with convulsions and died.

The eye removed on microscopic examination showed, externally, the globe somewhat enlarged, optic nerve red and swollen. A section of the eye was now made through its anterior-posterior diameter.

The vitreous chamber was filled with a soft gelatinous tumor, yellowish white in color, which might have been mistaken for purulent matter; the lens is pressed forward by the neoplastic growth, and encroached upon the anterior chamber.

Microscopical Examination.

One half of the globe was embedded in celluloidin, sections cut with a Toma microtome, double stained with hematoxylon and easin.

Histologically the new growth consists of small round cells, each cell contains a large nucleus, in the center of which may be seen a few granules; the blood vessels are destroyed except on or near the surface of the tumor, fatty and calcareous degeneration has taken place in the greater portion of the growth.

The optic nerve shows at the lamina cribrosa a nearly complete degeneration of the nerve fiber; the lymph spaces also contain large numbers of typical glioma cells. The central extremity of the portion of the nerve removed shows some glioma cells along the optic nerve fibers; it is very rich in blood vessels at this point; the connection tissue exhibits but slight change.

The tumor and optic nerve show nothing exceptional from glioma in general, but the history of the case after enucleation is somewhat unusual.

1st. The nerve of the eye enucleated showed on macroscopic and microscopic examination that it was profoundly affected.

2d. The appearance in the right eye of the neoplasm, with no return of the disease in the orbit of the eye removed, though the optic nerve showed pathological changes, namely, glioma cells.

3d. The sudden attack of convulsions, from which we are entitled to presume the brain was affected with the same pathological growth as the eyes.

4th. The sudden death, without, "so far as can be gathered from the parents," premonitory symptoms, that the brain was affected with a neoplasm.

SOME REMARKS ON SYMBLEPHARON, WITH REPORT OF A CASE.

BY J. W. CHAMBERLAIN, M. D.

Before reporting an interesting case of symblepharon, it would perhaps not be amiss to say a few words about this affection of the eye.

Symblepharon is a term applied to adhesions of the conjunctiva of the eyelids to that of the globe. It is divided by different writers into several varieties, the names of which indicate the character or extent of adhesion,—e. g., we have partial and complete symblepharon; the former may consist of one or more of the other varieties, but must as its name indicates be only partial, i. e., portions only of the conjunctiva of the lids are attached to that of the eyeball.

Complete symblepharon is said by some authorities never to exist, the reason being that the secretion from the lacrymal gland being constantly poured into the conjunctival sac, prevents a total adhesion of the conjunctival surfaces. Total symblepharon of the lower lid is occasionally seen.

Partial symblepharon is further divided into membranous and trabecular; the former being characterized by adhesions of the membrane in folds, which, extending from the lid to the globe, form separations or divisions of the conjunctival sac into pockets.

Trabecular symblepharan is formed by adhesions of the conjunctiva only at small points. The movement of the eyeball, putting the membrane upon the stretch, gradually elongates the attached fibers until a fibrous band exists between the points of attachment.

Symblepharon carnosum is still another variety. This, as its name indicates, is a fleshy growth, connecting the palpebral with the ocular conjunctiva. It is usually complicated with one or more of the other varieties, and is the most difficult of all to relieve permanently.

The causes of symblepharon are many and varied. Traumatism is a frequent cause. Among the most common causes are the accidental introduction of strong acids or alkalies upon the conjunctival surface; burns from molten metals, scalds and explosions of gunpowder or chemicals are also frequent causes. Gonorrhœal ophthalmia and diphtheritic conjunctivitis, or the too free use of caustics in the treatment of trachoma or other affections of the lids, sometimes produces a slough that causes symblepharan.

I saw a case recently, resulting from gonorrhœal ophthalmia, in which there was a large amount of adhesion of the conjunctiva of the upper lid to the cornea. Appropriate treatment had been neglected until vision was lost and there was a corneal slough and adhesion of the lid. The globe became atrophied and useless, and the adhesion caused considerable impairment of mobility of the eyeball. The patient objected to having an operation made, and I do not know whether sympathetic trouble resulted or not. Sympathetic trouble is claimed by some writers to result occasionally from symblepharon, where the impairment of motion is considerable.

Operations for the relief of symblepharon are many and are generally unattended by very good results. They all tend to the accomplishment of one object, viz., the separation of the adhesions and the prevention of the return of the trouble. The treatment, of course, depends upon the location and extent of the adhesion. When the connecting bands are small and the points of adhesion are very limited, we may dissect off the connecting band at its ocular extremity and with a ligature draw it over the

margin of the lower lid, holding it in this position by fastening the ligature to an adhesive strap, then with two or three fine sutures unite the conjunctiva, thus covering the denuded portion of the eyeball with healthy tissue. Healing without adhesion will usually follow. I have seen the severed end of the connecting band turned upon itself and transplanted into the palpebral conjunctiva with good results. These procedures are of course only applicable when the connecting bands of tissue are small. When there is any considerable adhesion other methods have to be adopted. Some operators use a metallic or ivory shield, that can be retained in position by sutures, between the globe and eyelid, after a free division of the adherent surfaces. Mr. Wordsworth, of London, used a glass shield, with which he obtained some good results.

Artificial eyes have also been used to keep the surfaces from adhering, after freely dividing the adhesions. Many operations have been devised for the transplanting of healthy conjunctiva to cover that removed by the separation of the growth from the globe. Mr. Teale devised the plan of transplanting a portion of the conjunctiva of the same eye to cover the freshly denuded surface. A portion of healthy conjunctiva is dissected from the globe and the flaps made to cover the portion from which the conjunctiva was removed by the operation, where it is held by fine sutures. Many modifications of this operation have been adopted by different surgeons from time to time. Mr. Wolfe, of Glasgow, originated a plan that is practiced extensively by himself, and with favorable results in many cases. His operation is to graft a portion of the conjunctiva of the eye of a rabbit into the wound made by the removal of the growth. After making a free division of all the adhesions which interfere with the movement of the eyeball, he dissects off a portion of the conjunctiva from the eye of a rabbit sufficiently large to cover the denuded surface and quickly transfers it to the

eye of the patient, where it is held in position by fine sutures.

A boy thirteen years of age came under my observation some months since with an extensive symblepharon of the lower half of the eye. The history of the case was as follows: About two years since, during a celebration in the town in which he lived, there was a large bonfire, various inflammable articles were thrown upon it from time to time, among which was an oil barrel in which there was a small amount of oil that ignited and burned very rapidly, and an explosion took place throwing the burning material in all directions. Some of the burning fragments struck the boy in the face, burning him badly. One side of his face is badly scarred, the eyebrow and a portion of the eyelids on that side are gone, and a large symblepharon is a result of the injury. It is of the fleshy and membraneous variety. A tough membrane extended from the inner angle of the lids to a point at the sclero-corneal junction overlapping the cornea for a distance of one line. In addition to this a fleshy growth united about one-half of the lower lid with the eyeball. The growth extended up to and covered the lower half of the cornea, and seriously impeded the movements of the globe.

About one year since the lad had been taken to Milwaukee, where, during a three months stay, the entire growth had been twice removed, but each time it returned and was fully as bad as at first. I decided to divide the operation into stages and make several operations, giving each one an opportunity to heal before proceeding further and if possible to ligate the growth, thereby causing it to atrophy before removing it. The first operation made was to divide the membraneous band that extended from the inner angle of the eye to the globe. This was carefully dissected off and turned upon itself something after the ligation method of dealing with a pterygium, the point was turned upon itself and drawn far back toward the

base through which the suture was passed and tied. Cold water dressing was applied and the balance of the operation postponed until this one had completely healed and cicatrization had taken place. The operation was done under cocaine and was quite painless. A few days later healing had taken place without any adhesions and the next step in the operation was made.

A needle, armed with heavy black silk, was passed under the growth so as to include about one-half of it. This ligature was securely and tightly tied, and the other half of the growth was treated in the same way. I intended to include the entire growth in these two ligatures. Cold water dressings were applied and the ligatures left to ulcerate through, which was accomplished in a few days.

A small portion of the growth was removed and the portion covering the cornea grew visibly thinner and more transparent. The patient was sent home to return in a month, and when he returned there was only a small portion of the growth that seemed inclined to return. This, I concluded, was a portion that had escaped being ligated before. This remaining portion was ligated and the patient returned home a few days later. At this time there was very little, if any, impairment of mobility of the eyeball and the cornea was slowly clearing up.

It has now been some months since the case was operated on, and at last accounts there had been no perceptible return of the growth.

NERVOUS DISEASES.

R. O. BEARD, CHAIRMAN.

REPORT OF CHAIRMAN.

The Status of Neurology.

Of all branches of scientific medicine, neurology, in the method of its development, may be said to have made haste most slowly. Of comparatively recent birth, it has been of very gradual growth. The neurologist owes nothing to antiquity. He does not find in Hippocrates or Galen the elements of his specialty. Early medical literature took no cognizance of the nervous system or of nerve disease. If the fact of insanity was forced upon the attention of the ancients, it was regarded as a moral possession by demons rather than an evidence of disease. Even the man who was inhabited by seven devils can hardly be looked upon as a clinical contribution to our knowledge of the psychoses. And if our more immediate ancesters were forced to abandon this notion of an external personal force productive of nervous disease, they substituted therefor the equally absurd belief in an indwelling vital force, which they still termed "spirits."

But, if the neuroligist of to-day has lost anything because the foundations of his science were not laid until modern times, he has compensation in the fact that they rest upon more scientific ground, that he has had less to tear down before he could find his footing, and has had the opportunity to build upon them with that measure of

conservatism which is essential to the determination of scientific truth.

The advance of neurology at the present time is still characterized by this progressive caution. We are still studying the elementary principles. We cannot go far toward a correct pathology and an intelligent therapeutics until we have mastered not only the histology but the physiology of the nervous system. Toward this end our most valuable work is being done. The localization of brain function, the assignment of the vaso-motor system to its proper seat in the medulla and the cord, the recognition of the existence and important influence of trophic nerves and nerve centres, which control the nutrition of the tissues,—all these are significant steps which have lately been, or are still being made. They have permitted some progress in pathology, while they have necessitated some retreat from positions which have been taken too far ahead.

Erb, in France, is dissenting, with some reason, from the theory of the sensory or posterior spinal origin of ataxic disease. Jewell and others, in this country, are seeking to revise our views of the morbid conditions in epilepsy, and are rightly, I believe, referring pseudo muscular hypertrophies and progressive muscular atrophies from the anterior horns of gray matter, to a trophic track in the lateral columns of the cord.

Hysteria still remains the opprobrium of this specialty, but it is the subject, to-day, of active and interesting discussion. In his report to the American Medical Association, at its late meeting, Dr. S. E. Gordon, chairman of the section on Obstetrics and Diseases of Women, takes up this connecting link between neurology and gynæcology as the subject of his paper. My own convictions lead me to dissent from his view that hysteria has a necessary relationship to diseases of the uterine appendages; to believe, rather, that such ovarian errors as he describes

are the frequently *exciting* causes, instead of the essential *fons et origo* of this hydra-headed malady; the sparks merely which light up the conflagration already smoldering in a diseased nervous system. Yet I am wholly in accord with his view that hysteria is a disease which entails real and often aggravated suffering upon its victims, and is not to be scoffed at as an imaginary disorder. Rather is it a disturbance of those nerve-centres which preside over the imagination and the will—of the control centres, as it were, and particularly those which regulate vaso-motor function. I ascribe to the uterine and ovarian troubles simply the part of morbid stimuli to the unregulated action of these organic nerve-centres. It seems to me a mistake to look upon all reflex errors of function, which result from disease of the generative organs, as hysterical phenomena.

Another of the most conspicuous milestones which mark the progress of this department of medicine is the growing recognition, upon the part of alienists, of a type of primary insanity which goes by the name of paranoia, or the insane diathesis. There are large numbers, especially among the immigrant classes, who are victims of this incipient insanity, which only needs the occasion or the stimulus to actively manifest itself.

A fact of which we cannot too often remind ourselves is the increasing prevalence, especially in cities, of cases of cerebral exhaustion or mal-nutrition. Insomnia, among other symptoms indicative of this disorder, is often mistakenly attributed to cerebral hyperæmia, and treated, accordingly, with poor results. A spurious form of insomnia sometimes exhibits itself in cases of hypochondria and melancholia. A patient will complain of insomnia who, in reality, will sleep for hours unrestfully and wake unrested, with the impression, traceable to the lack of benefit derived from sleep, that he has not slept.

Permit me to direct your attention to another satisfac-

tory feature of the present growth of neurology, viz., the tendency to determine the neurotic, or, sometimes, the psychical element in many forms of so-called functional disease. A simple instance of this may be noted in the case of "rose cold," or "hay fever," which is now not only acknowledged to be a neurosis, but which is known to have, in many instances, a psychic origin. In the present state of our knowledge any contribution to the study of these so-called functional disorders must necessarily be of a fragmentary nature. The term functional, so applied, is in itself really a confession of the ignorance of the observer or the pathological obscurity of the disease in question. That it is most frequently employed in the classification of nervous maladies is simply because the nervous system is that part of the human economy of which we know the least.

These facts are strikingly illustrated in the literature of cardiac disorders. "Organic diseases of the heart" are those in which the existence of a gross eccentric lesion, which is responsible for the disturbance, has been determined. "Functional diseases" of the same organ are almost invariably neuroses whose centric or eccentric seat is undetermined, and is, perhaps, indeterminable by our present methods of investigation. Our ignorance of this latter class of cases is profound, and yet the large number of them which are ultimately fatal should call for the abandonment of a term which implies their trivial character and should invite to them the serious attention of the neuro-pathologist.

Concerning the probable seat of the lesion in these cases much has been said, and by very general consent they have been referred to the pneumogastric plexus or, more properly, to those nerve-centres which control the cardiac distribution of these nerves. While angina pectoris, a term which probably includes more than one form of disease, is often accompanied by gross lesions of the

heart and aorta, it is not necessarily associated with them nor consecutive to them. It appears in company with no one form of organic disease of the organ itself, or its appendages. Bartholow, Flint, Niemeyer and Quain, all coincide with these statements. I incline to the opinion that these gross lesions of the cardiac apparatus are more truly to be regarded as consecutive to the neurosis—that they may be the result of impaired nutrition incident to the implication of trophic nerves which run in the pneumogastric plexus.

Recently, however, Huchard, of Paris, has combatted this view and holds that angina pectoris is of two forms, the one functional and *false*, the other organic and *true* angina. The former, he says, is never fatal, yields to treatment, appears frequently in youth and is often cured spontaneously. The latter, he claims, can be cured, but usually tends to a fatal termination, and is a disease of maturer years. The specific lesion, says Huchard, in this true angina is atheroma of the coronary arteries, causing death eventually by ischæmia of the heart. I believe there is good ground for disputing both his premises and his conclusion. Cases of angina pectoris, occurring in middle life are often, unquestionably, complicated with atheromatous arteries, but even in these instances it is difficult to see how such a lesion can produce paroxysmal attacks, recurrent ischæmia, the attendant disturbance of the stomach, œsophagus and larynx, and the coincident dyspnœa. Moreover, sufferers from angina pectoris die, in whom atheroma does not exist—cases, in fact, in which the patients are too young to admit of its existence. By your leave, I will detail two cases, occurring within the past two years in my own practice, which emphazise these statements.

H. M., age 20, a well developed muscular girl, in good general health, suddenly suffered, September 21st, 1884, a typical attack of angina pectoris. I reached the patient

within a short time of its commencement. Found her sitting erect in bed, with limbs fixed, hands clenched, anxious countenance and evidently in intense pain. Face and extremities were covered with a cold perspiration. The eyeballs were prominent and the thyroid body somewhat enlarged. Pulse hard, wiry, rapid and intermittent, becoming threadlike during the attacks. Arterial constriction evidently extreme and cardiac pressure low. The temperature was normal. Paroxysms lasted from one to three minutes and recurred with great regularity every eight to ten minutes, each being immediately followed by profound nausea and vomiting. Tearing præcordial pains radiated downward toward the stomach, and upward to the neck, left shoulder and arm. The frequency and duration of the attacks precluded examination of the heart. Gave hypodermic injection of one-sixth grain of morphine, with atropine, but without noticeable effect: ice given by the mouth; allowed patient to inhale a few drops of nitrite of amyl, but without any decided result; substituted chloroform, cautiously, with slight benefit, moderating but not suspending the attacks.

7 P. M. same day. Requested Dr. Geo. F. French to meet me in consultation. An hour later, at his suggestion, gave another hypodermic injection of one-fourth grain of morphine, with atropine, but failed, as before, to obtain any appreciable effect. Pushed chloroform to the point of analgesia, the paroxyms being for the time-being controlled. An hour later they returned with aggravated intensity, and continued, at intervals, despite the free use of chloroform and amyl, for seven hours. Toward the close of this time each paroxysm was accompanied by clonic convulsions of the muscles of the chest and upper extremities, and bright scarlet spots simultaneously appeared upon the hands and feet, gradually fading away during the intervals.

Upon the ultimate cessation of the paroxysms, a fixed

dull præcordial pain remained. The pulses were found to be asynchronous, the left radial being less frequent and most feeble and very markedly intermittent. Clonic contractures of the muscles of the neck, chest and upper extremities occurred at intervals for some hours, and extreme hyperæsthesia of the surface of the body over the left thorax rapidly developed. Vomiting still distressed the patient occasionally. Tincture of capsicum was given by the mouth and twenty grains of bromide by the rectum.

September 22nd, A. M. I attempted a physical examination of the chest, but was obliged to desist in consequence of the hyperæsthetic condition. Left pulse 132, right 140; respiration 32 and labored; tongue tremulous; heart's action extremely feeble; intervals between first and second sound shortened. Cardiac and abdominal pain, of a dull character, still persistent. Ordered digitalis and quinia every three hours; tincture of capsicum, also, at intervals, with milk, brandy and ice.

At noon of same day was called in hastily to find the patient in marked collapse. Left pulse 140, right 154; respiration, 36 per minute and shallow; temperature 97°. Pain still severe; deglutition impaired; act of swallowing induces reflex spasm of the thoracic and cervical muscles, and of those of the upper extremities. Gave hypodermic injection of digitaline with temporarily good effects. Ordered food and medicine administered per rectum.

6:30 P. M., same day. Symptoms slightly relieved. Pulse, however, very feeble and retarded and intermittent especially in the left radial; respiration 30 and less difficult; thyroid swelling decreased. Physical examination revealed no cardiac lesion. Patient was anxious, restless and sleepless; ordered bromide by enema.

September 23rd, 3:30 A. M., was called hurriedly to the patient, who had suffered another sudden collapse. The left pulse was practically extinct; the right 146 and

extremely feeble; heart sounds weak and muffled; respiration 38, shallow and sighing; temperature 96.4. Through the night the patient had been in slight methodical delirium, alternating with intervals of stupor, followed, upon awakening, by slight clonic convulsions. Pupils widely dilated. The kidneys were active, as they have been throughout the attack, and the urine showed no trace of albumen.

Drs. French and Hunter were called in counsel. The latter made a very careful physical examination, but with wholly negative results. He found the heart neither enlarged nor displaced, the signs of valvular disease absent and the heart-sounds pure. There was no appearance of œdema, and a repeated examination of the urine, with the aid of the microscope, also gave negative results. Bright red spots were observed over the dorsal surfaces of the wrists and finger-joints. Counsel concurred in the opinion that there was nothing to warrant any suspicion of cardiac or renal lesions. Stimulants, digitalis and quinia were continued.

11:30 A. M., same day, met Drs. French and Hunter again in consultation. The patient was partially conscious, delirious at intervals, and suffering severe præcordial, abdominal and cephalic pain of a neuralgic character. The left pulse was not discoverable; right pulse 154 and extremely feeble and fluttering; respiration 36, very labored; temperature 96.2; extremities cold; face pallid; clonic convulsions infrequent and less severe. Repeated physical examination of the heart, lungs and abdomen gave no determinate evidence.

2.30 P. M., same day, was called hastily, to find the patient rapidly sinking. Both pulses extinct; heart sounds discernible but obscure; respiration hurried and gasping; temperatutre, in the axilla, 95.2; face and extremities cyanotic; pupils extremely dilated; deglutition impossible. External heat and hypodermic stimulation

had no effect. Death occurred at 3:10 P. M., forty-eight hours from the commencement of her illness, seemingly from paralysis of the pneumogastric centers, the heart's action continuing after respiration had ceased. An autopsy was not permitted.

I learned later that no distinctly anginous attacks had occurred prior to this illness, but that the patient had occasionally suffered sharp momentary præcordial pain. I gathered, also, that this girl's father had died, in early manhood, in a similar way, after an attack of much briefer duration which had been preceded by other light paroxysms of pain at long intervals for several years. In his case an autopsy was made, but no cardiac or aortic lesion was discovered.

It will be observed how powerfully the neurotic element figures in the case I have related, and how closely the symptoms follow in location the distribution of the pneumogastric, or that of the nerves with which it is most intimately associated. So strongly dominant, indeed, were these nervous phenomena that, within twelve hours of death, one of my consultants was disposed to regard them as hysterical in their origin. For one symptom, the asynchronous pulse, I am at a loss to account. The relative infrequency of the left radial pulse was seemingly due to a retardation amounting to occasional intermittence.

To my second recorded case I shall only briefly allude.

A. F. is a married woman, aged 30; has had, for two years past, occasional paroxysms of typical angina pectoris. Cardiac lesions are not discoverable, nor has the character of the pulse ever suggested atheromatous vessels—a suggestion somewhat incompatible, moreover, with the age of the patient. A peculiar feature of the attacks she suffers is the development of a temporary swelling about the breast upon the left side and the existence of exceedingly tender, deep-seated points possibly referable to the seat of cardiac ganglia. In examining

this patient I accidentally discovered that deep pressure in the neck above the clavicle would slow the heart beat and at the same time cause pain and a sense of suffocation,—results evidently due to pressure affecting the sensitive pneumogastrics. Subsequent experiment showed that the left nerve was most susceptible to this influence, and that during the attacks paroxysmal effects were reinduced by this means. Simultaneous firm pressure upon both nerves gives negative results, possibly because the reflex action is thereby cut off in its course. The case has made very marked improvement under a prolonged course of nitro-glycerine and nerve tonics.

Together with the history of many other cases to be found in our best literature, such as these go far, it seems to me, to warrant the belief that angina pectoris, in its true form, and other allied disorders, are frequently, if not always, pure neurosis; that, in fact, they belong to a class of cardiac nervous diseases.

Turning from this special topic to our general review of the entire field, we see that even the meagre advances we are making in neuro-pathology have led to some intelligent progress in treatment. Many remedies have been outworn, some old drugs are finding new favor and some new ones are giving promise of usefulness as they are applied under a better understanding of vasal, trophic and reflex forms of disease. Dr. J. Leonard Corning's proposed method of direct medication to the cord is worthy of consideration. His attainment of local anæsthesia by hypodermic supra-spinal injections of cocaine is significant of large possibilities in this line.

The search for safe and efficient means of procuring sleep is bringing before the profession for trial certain new hypnotics. Among these *urethau* deserves mention. It is more variable in its effect than chloral but it is decidedly safer, and has the special merit of not depressing the heart's action. In the control of the reflex disturbances

of infancy and childhood it is particularly useful. *Paraldehyde* is another remedy of this class which bids fair to occupy a field of its own. It is of value as an antidote to strychnia, an indication for its usefulness in the treatment of tetanic disease. It does not often disturb the stomach, and, like urethau, it is not a cardiac depressant. Neither of these drugs allay pain, but they are in every way adapted to the relief of insomnia. Hypnone has not yet had much opportunity to display its powers, but much is claimed for it.

Among the sedative and anæsthetic classes of drugs few remedies have ever attracted the attention that has been bestowed upon coca and its alkaloid, cocaine. In one sense cocaine is the analogue of urari, in that while the latter paralyzes motor nerve terminations the former similarly affects sensory nerve-endings. A striking illustration of its power in this direction is its successful application to the mucous membrane of the nasal passages for the relief of hay fever. But it has, doubtless, a coincident effect upon nerve-centres, and, indeed, there are dangers incident to its internal administration which, unless the most scrupulous care is exercised by the profession, are likely to bring it into disrepute. As a cerebral stimulant it is applicable to the relief of mental depression and of some forms of neurasthenia; but it has an unfortunate tendency to disturb the digestive organs, and, in large doses, will depress and even derange mental function. Its frequent use is prone to engender a more insidious and even more dangerous habit than that of alcohol or opium, and hence it is not well adapted to the relief of patients addicted to the use of these drugs. In the reflex disorders arising during pregnancy the preparations of coca leaves serve a very useful purpose.

Upon the strength of the neurotic nature of whooping-cough, I shall risk taking a step outside my field to refer to the lately proposed use of quinine in that disease. I

have had occasion to test it carefully, and with success. I account for its influence upon the score of its sedative effect upon the perturbed nerve-centers, rather than upon the theory of its germicidal powers.

Under the head of nerve nutrients and tonics, I may be permitted, perhaps, to urge the more extended use of *free* phosphorus. I am convinced that the value of this agent as a nerve-food depends largely upon its use in *free* form.

In the treatment of general nervous diseases, I doubt if we have more than begun to realize the possibilities which lie in the use both of electricity and massage.

With an unwillingness which is remarkable, the profession is gradually being forced to a recognition of the prominent part which the element of mind has always played, and is destined still more to play, in the cure of diseases of nervous origin. When we remember how large a factor is the mind in the causation of disease, it is not strange or incredible that the relief of nervous maladies can be obtained or assisted by the agency of this same force. M. Charcot has lately delivered clinical lectures upon the subject of hysterical paralyses and neuralgias produced by mere traumatic suggestion or the thought of injury. It is a commonly observed fact that the nervous shock attendant upon a sudden accident will provoke partial paralyses. We are familiar with the involuntary sensation of helplessness which momentarily succeeds the fact of fright, and it is probable that this may be so aggravated as to induce permanent disability. Similarly do chronic ailments participate in these mental causes.

Under a reversion of the same principle, mind cures, in every form, lose their tinge of the miraculous and become, to the thought of the scientist, rational. Dr. J. S. Jewell, in his new journal, *The Neurological Review*, reports a case of melancholia cured by exorcism and affords the satisfactory explanation that the emotion of awe sud-

denly exited operated toward the removal of the vaso-motor spasm upon which the melancholy depended.

The physician should study to introduce this element of mental confidence and moral influence more largely into his methods of treatment.

Upon the same principle of mind-cure in even mental disease, hinges the revolution through which we are passing, as to our means of relieving insanity in the public institutions devoted to the insane in this country. We are gradually learning to relinquish the old and cruel methods of restraint, and, instead, to interest and occupy these patients, and to submit them to mental exercise in the way of school-training, etc. It means merely that we are seeking to apply to the mind the axiom that we have long applied to muscle—that use increases function.

We are beginning to discover that the diseased brain, stimulated to healthful exercise, is on the road to recovery; that the disordered intellect or will, so cultivated, will reassert its dominance of the inferior nerve-centers; that control may thus be reestablished and, in some instances, mental equilibrium restored. I do not hesitate to avow the belief that education, properly conveyed, will not only often restore a lost mental balance, but will go far to neutralize the tendency toward the development of hereditary nervous disease.

DYSMENORRHŒA.

If I thought it necessary to apologize for treating of dysmenorrhœa before a section, the duty of which is to treat of nervous diseases, I would do so by begging leave to suggest that it is in a great many cases essentially a disease of the nervous system; that the dysmenorrhœa

is only a symptom of uterine or ovarian irritation, and that the irritation or even congestion is indirectly, if not directly the result of nervous irritation, or some *morbid* condition of the nervous system, and under those circumstances is a reflex and not an organic disease of the uterus, ovaries, or both.

I think to attempt to prove the correctness of this position would be to impugn the intelligence of my audience. I therefore, with special deference, simply call your *attention* to the very intimate relation existing between the bladder, ovaries, uterus, heart, lungs, in fact almost every organ of the body, and the brain and general nervous system. As a result of a weakened condition of the nervous system, we not unfrequently have an irritable bladder. And also, individuals are caused to void their urine as a result of an extraordinary mental effort. We also have serious vomiting as a result of anemia of the brain. Violent uterine contractions produced in the mother as a result of her infant nursing her breasts.

I think it is generally believed that one of the causes, if not *the cause* of congenital club-foot, is a defect of nervous influence. And the same thing occurs in strabismus, in which the straight muscles of the eye frequently, almost in an instant, from irritation or convulsions, lose their parallelism, and never regain it without a surgical operation. And here Gross says, "the contraction of the muscles must be the direct result of a lesion of *innervation* or *preverted* nervous action.

That gangrene may and does occur, because of the interruption or suspension of the nervous fluid from any cause, is a fact that I think can not be successfully controverted. I do not suggest that any doubting one try the experiment, but should they feel like so doing, they may press sharply upon the pneumogastric nerve, between the internal carotid artery and internal jugular vein immediately above the thyroid cartilage, with the

points of the fingers, when, if the pressure is sufficient, the inhibitory ganglia of the heart will be so stimulated as to at once arrest the action of that organ and prostrate the experimentor, which should be very convincing evidence that the human body has a nervous system that we must respect if we would successfully treat it.

It is not my object, at this time, to inquire into the cause of dysmenorrhœa so much as it is to treat of dysmenorrhœa as a cause of insanity. But I assume that we seldom have dysmenorrhœa in a neuratic subject without having nervous, ovarion or uterine irritation as a primary cause; except it be the result of congenital deformity sufficient to produce closure of the canal, (which may be the result of preverted nervous action,) or polypous fibroid tumors, or acquired stenosis, (which is also often the result of perverted nervous action) or flexions; and flexions are not pathological conditions only when made so by preverted nervous action. And when dysmenorrhœa is a symptom of uterine irritation, the irritation is the result of nervous irritation; so that, while a symptom is not identical with the disease, yet, in this case, they are so inseparably associated that it almost seems to be a distinction without a difference; and when a writer speaks of uterine irritation he almost necessarily implies that his patient also is the subject of dysmenorrhœa.

"Many of the diseases belonging to woman, as woman, may be either the cause or effects of neurasthenia. It has been the custom to regard the various nervous symptoms with which women suffer, as the results of any uterine disease with which they may have been afflicted; but the wiser gynæcologists of the present are aware that with women, as with men, diseases of the reproductive organs may be a result of exhaustion. The various congestions and displacements, and inflammations, and especially uterine and ovarian irritability may, and do, come from

mal-nutrition, which mal-nutrition is a result and part of general mal-nutrition of the whole system. Irritability of these organs, of the ovaries, of the uterus, is sometimes analogous to the condition of the brain, which we call cerebral irritation, or of the spine, which we call spinal irritation, and will not yield to purely local treatment. Cases of this kind are sometimes treated for a long time without any satisfaction simply because the general constitutional treatment is neglected. Constitutional treatment alone, if judiciously and faithfully carried out, may sometimes cure these cases without any local application, or with but little, as has been shown by one of our prominent gynæcologists, Dr. Goodell."—*Beard.*

I quote from Marion Sims' Clinical Notes on Uterine Surgery (pages 141 and 142) the following:

"There is no such thing as what is called constitutional dysmenorrhœa. There was a time when we looked upon dropsy as an entity, a disease in itself, but now we know that it is only a symptom of various diseases. So it is with dysmenorrhœa, it is only a symptom of disease which may be inflammation of the cervical mucus membrane, retro-flexion, ante-flexion, fibroid tumor in one wall of the uterus or the other, contraction of the os-internum, or os-externum, flexures of the canal of the cervix, either acute or gently curved, either at the os-internum, at the insertion of the vagina, or extending throughout the whole length of the canal; all of which are but so many mechanical causes of obstruction, which must be recognized and remedied if we expect to cure dysmenorrhœa."

Taking that view of the matter in quoting, I will not confine myself strictly to the the term dysmenorrhœa, but attempt to show that dysmenorrhœa, or uterine irritation, occurring in women possessing the neurotic or neuropathic diathesis, may and does produce insanity. We are told by writers and teachers that hyperæmia of the spinal cord and cerebrum is a frequent cause of insanity.

You may ask, how does this condition produce insanity? I would reply that through the reflex action of the great sympathetic system we not only have hyperæmia of the spinal cord, but also of the cerebrum; consequently we must have a dilation of the vessels of both the spinal cord and the cerebrum.

Now, if the dilation be sufficient to crowd on the perivascular spaces so as to prevent a return of effete material from the brain through the perivascular canal, thus crowding out the perivascular fluid and making consequent pressure on the permanently distended vessels, (and the hyaline membrane, next the cells,) this effete material acts as a foreign body, thereby producing irritation, the result of which may be, and often is, insanity.

Hamilton says that "women seem to be more subject to this form than men (of sudden origin and sthenic character), and this is probably owing to irregularities of the menstrual condition." Uterine irritation symptomatized by dysmenorrhœa or amenorrhœa may be, and often are, its sole causes.

As an indirect support of this position I get from M. Rosenthall, (page 34,) Etiology of Cerebral Hyperæmia, the following:

"Increase of pressure in the vascular system is always accompanied by increase of inter-cerebral pressure. This also occurs from stasis of the inferior vena-cava in affections of the liver or other abdominal viscera, and in cessation of the menses."

I get from Russell Reynolds (page 587, vol. 1,) the following: "The catamenial functions and the climateric change are conditions in women that will favor the disturbance of the mental balance, especially where there is any predisposition thereto."

Also, on page 588, says: "The internal revolution which takes place in women at the climateric period leads

to many outbreaks of insanity in them between forty and fifty."

Same author, page 590: "The disappearance or the suppression of an accustomed discharge has of old been known to be at times followed by an attack of mania. Abdominal diseases are sometimes genuine causes of melancholia; and diseases of the sexual organs in women have always had a high place assigned to them in the scale of causes. It is certain that an attack of mania has been followed by the suppression of the menses, and that the return of menstruation is often followed by the recovery from insanity; but it is certain, also, that outbreaks of maniacal fury or of suicidal or homicidal violence have coincided with the period of menstruation."

Are not many of the catamenial irregularities symptomatized by dysmenorrhœa? and is it not true that many times the irregularities so symptomatized are sufficient to suppress for hours and even days the menstrual flow?

Hodge, on Diseases of Women, says, in speaking of the general symptoms of irritable uterus, on page 176:

"That mania is probably not unfrequently the result of uterine irritation." Also on the same page, under the head of Intellectual and Moral Disturbances: "That these symptoms are much diversified, varying from the slightest mental distress to the most profound melancholia, or the most vehement and active forms of mania."

Also, on page 179: "That when the uterine irritation is relieved the cloud is removed from the mental vision, the chaotic confusion of the ideas vanish; the indifference to friends and the business of life is superseded by warm affections and active devotion to duty."

Also, on page 122: That "dysmenorrhœa is essentially an example of nervous irritation of the uterus, manifested by pain and spasm of this organ."

Professor Wm. H. Byford, in his Treatise on the Unimpregnated Uterus, in speaking of the great sympathetic

influence which the diseased uterus exerts over the mental and moral faculties (on page 40), says:

"No more constant derangements perhaps occur than are observed in the mental and moral qualities of the patient; she loses the complete control which she has been in the habit of exercising over her emotions, and finds herself becoming despondent, fretful, suspicious and unsteady in her purpose; whimsical, having desires not before experienced, indulging in thoughts and feelings toward her friends which, in her former days she did not entertain. She will often call herself a changed woman. If the source of irritation is not discovered and removed she loses her strength of will entirely; and, instead of her moral feelings being guided by her will under the influence of a sound judgment, she exhibits indecision and wavers in matters about which she has heretofore had no difficulty in making decisions. She finds herself giving away to peevishness to a frightful degree; nobody can please her. In place of her usual satisfaction in the attention of her friends, she, finds fault with their efforts to make her comfortable. Sourness, moroseness, jealousy, carelessness, timidity and some peculiar perverseness change her nature entirely. Sometimes one class of ideas will seize her whole faculties, and she will scarcely think or talk of anything else."

As will be seen, this state of things is closely bordering on insanity, and there is no doubt that insanity is often the result of uterine irritation in patients who are hereditarily predisposed to it.

Griesinger, in his Mental Pathology and Therapeutics (page 140), again says:

"In the female sex, menstruation and all its disorders exercises great influence on the development and course of mental diseases. The most simple, but at the same time the most rare cases are those, where, in persons who have been hitherto healthy, there occurs, after sudden

cessation or suppression of menses, acute violent hyperæmia of the brain, and immediately therewith an outbreak of mental disorder, generally mania with active cerebral congestion. Dysmenorrhœa is ordinarily accompanied by those nervous affections which are understood by the name of hysteria; these are often principally cerebral."

"The local diseases of the uterus, ovaries and vagina—ovarian cysts, displacements of the uterus, uterine catarrh, ulcers of the cervix, etc.—are generally followed, in the first place, by well marked hysteria, which then may gradually pass into insanity. This insanity often presents distinct traces of its origin in its general hysterical character or in certain morbid conceptions."

That there are many more ladies afflicted with neurosthenia than is generally supposed; and that neurosthenic ladies are almost sure to be afflicted with some form of uterine or ovarian irritation, symptomized by dysmenorrhœa, and that such irritation will and does produce insanity there seems to be no doubt.

How very important it is, then, that we should take into account every means known to the intelligent physician to diagnose and treat such a patient. They require treatment all over; it will not answer to treat a patient afflicted with dysmenorrhœa from nervous prostration with pessaries, tents, or any kind of dilators, but take care of the nervous system and general health first, then the local treatment in the very few cases that may require it. And such cases as require only local treatment, *forcible dilatation* has given *me* the best and most satisfactory results where stenosis or flexion was the cause of dysmenorrhœa. I seldom of late use a tent of any kind, and never a sponge tent or uteratome. The dilators that have proven the most successful in my hands are Wilson's and Ellinger's, modified by Goodell; but the dilatation must be very thorough; and the flexions and stenosis in a majority of cases will be radically cured, and amputation

of the cervix will seldom be necessary from the fact that it becomes shortened in proportion to the dilatation.

If by calling attention to the subject I aid in attaching to it the forensic importance due it, I will have been amply paid for the time spent in its preparation.

BELL'S PARALYSIS.

BY C. EUGENE RIGGS, M. D.

During the past year, several cases of Bell's paralysis have been under my care, and I have thought a report of the most interesting of these, together with a few remarks, might be instructive, as this is a disease which, though of not very frequent occurrence, requires a thorough knowledge of the anatomy and physiology of the parts, in order that the extent and location of the lesion may be correctly determined, the disease intelligently diagnosed, and properly treated.

The first case I will notice is that of a reporter, aged twenty-six, who came to me for treatment April 26th, of the present year. Three days before this date he was exposed to quite severe cold, and shortly after, to his great surprise, noticed the right half of his face was paralysed. The right eye was open and he had no power to close it; neither could he pucker the lips as for whistling, or even close them on the side affected. Upon questioning the patient, I found there was a neurotic tendency in the family and he had always been subject to neuralgia, and at times he experienced a weakness and trembling of the hands and arms. He was somewhat addicted to the habit of smoking, and seemed to think this weakness more marked after the excessive use of

tobacco. During the past winter he was an almost constant sufferer from coryza. Since the invasion of the paralysis, has suffered from severe pain in the cervico-mastoid region of the affected side.

When he presented himself at my office, his face bore the characteristics of paralysis of the facial nerve. The expression of the right side of the face was entirely lost. The surface of the skin was perfectly smooth; all the natural lines and curves of the affected side being obliterated. The eye was wide open and staring. The conjunctiva, red and inflamed; the tears were constantly overflowing the lids and running down on the cheeks. The mouth could not be closed except on the left side. All the muscles of the affected side hung limp and useless. The angle of the mouth was carried down by the simple force of gravity, far below its natural position. On the opposite side of the face the muscles, free from the antagonizing action of their fellows, contracted much more forcibly than normal. Thus the symmetry of the face was completely destroyed.

Upon questioning the patient upon the subjective features of the case, I found there was marked hyperasthesia of the right auditory nerve, the patient experiencing painful sensations when a sudden noise, as the violent closing of a door, occurred near him. Also the sense of taste was markedly involved upon the affected side. A sapid or saline substance placed upon this side of the tongue was much less readily appreciated than upon that of the left side. There was also a metallic taste in the mouth. The saliva was diminished in quanity and more viscid in character than normal. The patient also experienced a difficulty in mastication on the right side, and there was a constant tendency for the food to become lodged between the cheek and teeth.

By careful examination, I could find no deviation of the tongue or involvement of the soft palate, and the uvula,

though not straight, the concavity was towards the affected side. The electro-contractility of the muscles affected was lost to the faradic current, but they responded readily to both the galvanic and static.

Two other cases under my care were so similar to the one described, that it would be but repeating symptoms to give a separate report of them. The paralysis in both these cases was caused by exposure. But there was one other case came under my observation which I think worthy of a detailed account, though it was one in which little result from treatment could be hoped for, the paralysis being, so far as known, congenital. The case was brought before my class in St. Paul Medical College, in February of this year, and formed the basis for a very interesting clinic.

The patient was a young man of about twenty, rather slight in stature and somewhat aræmic in appearance. The paralysis in this case was also upon the right side, but the patient presented quite a different appearance from that of the one above described. In the place of a flabby and relaxed condition of the affected side of the face, the muscles had become atrophied, and the state which Erb styles the reaction of degeneration had taken place, and the objective symptoms were just the reverse of those in the case first mentioned.

In the case now under consideration, though the muscles were not under control of the patient, yet there was not the entire loss of expression you find in the early stage of the disease, as the atrophy of the muscles had caused their contraction and a seemingly more natural condition. Some of the lines and curves had returned, and the angle of the mouth, instead of drooping, was drawn more forcibly upward than normal. The lids of the eye, in this case, were also under the control of the patient, and he could corrugate the brow. There was a peculiar formation of the right auricle. It was almost infantile in size

and quite abnormal in shape, the middle portion being drawn over the meatus externus in a very peculiar manner. The tongue, soft palate and uvula were normal, as was also the sense of taste, as far as could be ascertained. As regards the secretion of saliva, there was no means of learning whether the amount was the same as when the nerve was unaffected, and its character was not noted.

In order that the seat of the lesion may be intelligently located in these cases, a brief review of the anatomy of the facial nerve, with its branches, must be made, as the manifestations of certain phenomena produced by the paralysis of the muscles, which receive their motor nerve supply from this source, are our only means of diagnosis, and, by tracing the nerve from its origin to its various points of distribution, the exact point to which the paralysis extends may be correctly determined, not only as to its situation in either of the three divisions of the nerve, viz.: the intra-cranial, within the petrous portion of the temporal bone, or external to the stylo-mastoid foramen; but the fact as to the number of branches involved in any one of these three divisions may be definitely determined.

The apparent origin of this nerve from the groove between the restiform and olivary bodies of the medulla oblongata with its deep origin from the floor of the fourth ventricle, its three divisions and distribution to the muscles of expression, are well known, but a thorough knowledge as to the anatomy and physiology of the branches of communication and distribution within the acqueduct of Fallopius, as well as those external to the stylo-mastoid foramen, is very difficult to acquire and more than difficult to retain. The external division of the nerve, after giving off a few branches of communication besides the post auricular, and some other muscular branches, divides into two great branches, the tempro-facial and cervico-facial, and these are distributed to the muscles of expres-

sion of the face, including the forehead, eye-lids, etc. Consequently, a paralysis of this division would cause just the condition we find in the patient the symptoms of whom were first described. The pain in the cervico-mastoid region complained of by this patient was, in all probability, due to the connection of a twig of the posterior auricular branch of the facial nerve with the auricular branch of the pneumo-gastric.

In the symptoms noted in the case of congenital paralysis, there was no loss in the power of the forehead and eye-lids, proving that the paralysis involved only the cervico-facial. The condition of the auricle in this case is quite difficult of explanation, unless we presume the injury of the nerve to have been from traumatism, and the same pressure which affected the large branch also involved the small auricular branch, while the other portion of the nerve escaped. But in the first case there were other symptoms besides the paralysis of the muscles of expression, showing the lesion to be internal to the stylo-mastoid foramen. These symptoms comprise the impairment of the sense of taste, involvement of the salivary glands, disturbance of hearing, etc. The difficulty in control of the food was due to paralysis of the buccinator muscles and not from any deeper cause.

In order that the disturbance of these functions may be understood, a brief review of the branches of the nerve within the acqueduct of Fallopius must be made. From without inward, the first branch of importance is the chorda tympani, which passes through the tympanic cavity, makes its exit from the skull, connects with the gustatory branch of the inferior maxillary division of the fifth, passes through the submaxilary gland, enters the ganglion of the same name and is finally distributed to the lingualis muscle. The second branch is the tympanic, a small branch distributed to the stapedius and laxator tympani muscles, and finally the three petrosal branches,

external, small and great are given out. The first named communicates with the sympathetic plexus upon the middle meningeal artery; the small petrosal with the otic ganglion, and is distributed to the tensor tympani and tensor palati muscles; while the large petrosal, after uniting with a branch from the carotid plexus to form the vidian nerve, enters Meckle's ganglion, and forms the motor power of the levator palati and azygos uvulæ muscles.

Therefore, should the paralysis extend the entire length of the nerve distal to the meatus internus, the symptoms manifested would be not only those found in this case, but the soft palate and uvula would be involved, as we can readily understand, by considering for a moment the physiology of the muscles above named; but, as the natural curves were found in the veil of the palate, and the tip of the uvula pointed towards the affected side, our inference is that the petrosal branches were not involved, and only the chorda tympani and perhaps the tympanic branches were external to the point of lesion, and the connection of this nerve with the submaxillary gland caused the decrease in the amount of saliva secreted, and the abnormal viscidity was due to the fact that the sublingual gland furnished a larger per cent. of the total amount than normal. The loss of the sense of taste was also due to the involvement of this branch. Probably the result of the loss of power of the erection of the papillæ of the tongue. In neither of these cases was there any symptom of paralysis of the nerve in its inter-cranial division, as would have been manifested by hemiplegia, involvement of other nerves, etc.

My treatment of the first case was electricity—the galvanic and static currents, both general and locally to the muscles affected, combined with strychnia. This has been my plan of treatment in all of these cases, and I have met with marked success. Of the different forms of electricity I prefer the static.

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